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THESIS

**THE PACIFIC PHASED ADAPTIVE APPROACH:
U.S. BMD IN RESPONSE TO THE DPRK**

by

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December 2014

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THE DPRK**

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ABSTRACT

This thesis aims to create a Ballistic Missile Defense (BMD) architecture in the Pacific. Since 1998, the Democratic People's Republic of Korea has launched ballistic missiles either over or toward the United States and regional allies Japan and the Republic of Korea (ROK). In response, the United States has created the Ballistic Missile Defense System to defend the U.S. homeland from North Korean or Iranian missile attack.

This thesis examines the factors influencing BMD efforts in the Pacific. It explores the military, political, and diplomatic concerns surrounding BMD cooperation in the United States, Japan and the ROK. After reviewing the contributing factors, this thesis outlines separate military and diplomatic objectives to be met in forming a BMD network in the Pacific.

The proposed Pacific Phased Adaptive Approach (PPAA) is modeled after the European Phased Adaptive Approach. Initial phases deploy sensors and interceptors to Japan and the ROK. Later, phases utilize new technologies to enhance sensor coverage and intercept capability across the Pacific. The diplomatic initiatives build upon existing bilateral relations to achieve a trilateral U.S.-Japan-ROK defense agreement. The defense agreement is not necessary to fulfill the PPAA, but it allows for sharing of resources and efficient use of those resources.

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LIST OF ACRONYMS AND ABBREVIATIONS

ABIR	Airborne Infrared System
ACS	Aegis Combat System
ADMM	ASEAN Defense Ministers Meeting
ALTB	Airborne Laser Test Bed
ALTBMD	Active Layered Theater Ballistic Missile Defense
AMDR	Air and Missile Defense Radar
AOR	Area of Responsibility
ARF	ASEAN Regional Forum
ASEAN	Association of Southeast Asian Nations
BMD	Ballistic Missile Defense
BMDS	Ballistic Missile Defense System
C2	Command and Control
C2BMC	Command, Control, Battle Management, and Communications
CE-I	Capability Enhancement I
CE-II	Capability Enhancement II
CENTCOM	Central Command
CG	Guided Missile Cruiser
CRS	Congressional Research Service
CSG	Carrier Strike Group
DDG	Guided Missile Destroyer
DIA	Defense Intelligence Agency
DOD	Department of Defense
DOS	Department of State
DPRK	Democratic People's Republic of Korea
DSG	Defense Strategic Guidance
EFTA	European Free Trade Association
EPAA	European Phased Adaptive Approach
EU	European Union
EUCOM	European Command
FDNF	Forward Deployed Naval Forces

FTA	Free Trade Agreement
FTI-01	Flight Test Integrated 01
GAO	Government Accountability Office
GBI	Ground Based Interceptor
GEF	Guidance for Employment of the Force
GMD	Ground Based Midcourse Defense
IAEA	International Atomic Energy Association
ICBM	Intercontinental Ballistic Missile
IMTP	Integrated Master Test Plan
IRBM	Intermediate Range Ballistic Missile
JFCC IMD	Joint Functional Component Commander for Integrated Missile Defense
JMSDF	Japanese Maritime Self Defense Force
JSDF	Japanese Self Defense Force
KAMD	Korean Air and Missile Defense
LDP	Liberal Democratic Party
LRDR	Long Range Discrimination Radar
MDA	Missile Defense Agency
MRBM	Medium Range Ballistic Missile
MSC	Military Sealift Command
NATO	North Atlantic Treaty Organization
NMS	National Military Strategy
NORTHCOM	Northern Command
NPT	Treaty on the Non-Proliferation of Nuclear Weapons
NSS	National Security Strategy
P5+1	UN Permanent Security Council plus Germany
PAA	Phased Adaptive Approach
PAC-3	Patriot Advanced Capability 3
PACOM	Pacific Command
PMRF	Pacific Missile Range Facility
PTSS	Precision Tracking Space System
PPAA	Pacific Phased Adaptive Approach

PRC	People's Republic of China
QDR	Quadrennial Defense Review
RCEP	Regional Comprehensive Economic Partnership
ROK	Republic of Korea
ROKA	Republic of Korea Army
ROKN	Republic of Korea Navy
SBX	Sea Based X-band Radar
SCR	UN Security Council Resolution
SM-3	Standard Missile 3
SPT	Six Party Talks
STSS	Space Tracking and Surveillance System
THAAD	Terminal High Altitude Area Defense
TPP	Trans-Pacific Partnership
UAE	United Arab Emirates
UEWR	Upgraded Early Warning Radar
UN	United Nations

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I. INTRODUCTION

A. PROBLEM

Since 1998, the Democratic People's Republic of Korea (DPRK), also known as North Korea, has launched short-, medium- and long-range ballistic missiles either over or toward the United States and regional allies Japan, the Republic of Korea (ROK), Philippines and Australia.¹ Likewise, Iran has the largest ballistic missile inventory in the Middle East, conducts rigorous testing of their missile systems and remains an aggressor in regional and international politics. The U.S. Ballistic Missile Defense System (BMDS) was brought into being by the National Missile Defense Act of 1999 as a direct response to the Iranian and North Korean threats.² It is a global network of radars, interceptor missiles and personnel based throughout the United States, Europe, Middle East and Pacific, designed to defend the homeland and regional assets against an Iranian or North Korean ballistic missile attack. The current employment of BMD assets is based on regional defense plans. These plans and the placement of platforms are based on the concept of Phased Adaptive Approach (PAA).³ The PAA is the gradual implementation of BMD assets, into a region, over an extended period of time, which allows for continual testing and improvements to counter existing and evolving threats. Some regions have made more progress in the execution of this concept than in others. Currently, the European Phased Adaptive Approach (EPAA) exists as an outline for defending Europe; the same cannot be said for the Pacific theater.

The EPAA will provide U.S. missile defense for European allies against an Iranian missile threat. The first phase of the EPAA has already begun. Four U.S. guided missile destroyers (DDGs) are deploying to Rota, Spain. The second phase is the establishment of an Aegis Ashore site in Romania by 2015. The last phase is a second

¹ Daryl Kimball, "Chronology of US-North Korean Nuclear and Missile Diplomacy," Arms Control Association, accessed June 5, 2014, <https://www.armscontrol.org/factsheets/dprkchron>.

² *National Missile Defense Act of 1999*, Pub. L. No. 106-38, (1999).

³ "Ballistic Missile Defense Review (BMDR) Report February 2010," U.S. Department of Defense, vi, http://www.defense.gov/pubs/2014_Quadrennial_Defense_Review.pdf.

Aegis Ashore site that will be online in Poland by 2018. Upon completion of the EPAA, Europe will have BMD coverage against short-, medium- and intermediate-range ballistic missiles. While the United States continues to support missile defense efforts in Japan and the ROK, a plan, such as the EPAA, does not exist for a more permanent defense structure against a North Korean missile launch.

The first step toward a Pacific Phased Adaptive Approach (PPAA) requires adjusting the current defensive architecture while planning for a permanent regional and homeland defense. The PPAA will include lessons learned from previous missions and the use of assets from regional allies. The PPAA is based upon a legitimate threat from the DPRK. The satellite launch in 2012 was the only successful long-range launch by the DPRK. ROK, Japan and U.S. military platforms were employed to defend regional and national assets. This event served as a real-world event stressing the BMDS and BMD capabilities of regional allies. Through the identification of strengths and flaws in the system, review of lessons learned, and advancement of BMD technologies, a flexible and capable defense design can be created similar to the EPAA.

This plan will then require actions by the executive branch of the U.S. government to be presented before the U.S. Congress in order to receive funding. Finally, the structuring of treaties and partnerships will be key due to geography and scarcity of resources. Europe has thus far seen cooperation among North Atlantic Treaty Organization (NATO) member states. While a comparable multinational body does not exist in Asia, it is imperative that multilateral or multiple bilateral agreements be executed to achieve success in the Pacific region.

The Pacific region is in need of a guiding course for ballistic missile defense posture and policy, therefore, the primary question is: What is the best path for the United States and its allies to take toward ensuring ballistic missile defense in the Pacific? Then, building from the primary question, the secondary question is: How can a version of the EPAA be developed in the Pacific?

B. LITERATURE REVIEW

Research shows that the platforms exist to counter a DPRK threat; however, there is room for improvement in coordination and integration. A Congressional Research Service (CRS) report from 2013 addresses the lack of a clear path for BMD in the Asia-Pacific region.⁴ The report states that the clear direction of the EPAA does not exist for allies in the Middle East or Pacific. It is clear that there is intent to execute something similar to the EPAA throughout all theaters, but the report underscores the absence of a plan for asset and personnel deployment. The Canadian Defense and Foreign Affairs Institute draws a similar comparison between North Korea and Iran concerning the possibility of an Intercontinental Ballistic Missile (ICBM) launch.⁵ The report specifically outlines the need for a layered defense structure in the Pacific.⁶

The deployment of assets and follow-on actions in the Pacific will be compared to the planned actions in the EPAA. The 2014 *Quadrennial Defense Review* is the foundation for overall U.S. military strategy going forward.⁷ The performance of the BMDS has been scrutinized by congress seeking to identify shortfalls in testing, training and deployment of forces. The Government Accountability Office (GAO) has reported mixed success in Ground Based Interceptor (GBI) testing.⁸ The GAO then published a report that outlines the limitations for GBI employment based upon testing requirements.⁹ The GAO has also recommended the need to further test the Standard Missile-3 (SM-3)

⁴ Ian E. Rinehart, Steven A. Hildreth, and Susan V. Lawrence, *Ballistic Missile Defense in the Asia-Pacific Region: Cooperation and Opposition* (CRS Report No. R43116) (Washington, DC: Congressional Research Service, 2013), 20–21, <http://fas.org/sgp/crs/nuke/R43116.pdf>.

⁵ Frank Harvey, Colin Robertson, and James Fergusson, “Canada and Ballistic Missile Defence,” Canadian Defence and Foreign Affairs Institute, March 2014, <http://www.cdfai.org/PDF/CanadaBallisticMissileDefence.pdf>.

⁶ Ibid.

⁷ Chuck Hagel, *Quadrennial Defense Review 2014* (Washington, DC: The Pentagon, 2014), 14–32.

⁸ Cristina T. Chaplain, *Missile Defense: Mixed Progress in Achieving Acquisition Goals and Improving Accountability* (GAO-14-481T) (Washington, DC: GAO, 2014), 4, <http://www.gao.gov/products/GAO-14-481T>.

⁹ Cristina Chaplain, *Missile Defense: DOD’s report provides limited Insight on Testing Options for the Ground-based Midcourse Defense System* (GAO-14-350R) (Washington, DC: GAO, 2014), 16, <http://www.gao.gov/assets/670/662856.pdf>.

variants prior to deployment in order to avoid modification expenses.¹⁰ An individual analysis of SM-3 Block IIB capabilities and alternatives was conducted and found the Department of Defense (DOD) lacking a clear vision for future operations.¹¹ Another GAO report outlines the EPAA and describes the issues experienced by the Missile Defense Agency (MDA) while deploying assets in support of the EPAA.¹² This report contains a timeline for deployment of assets in Europe in support of the Obama administration's policy for defending Europe. A similar report was published that is less than optimistic about the near future deployment of Aegis Ashore in the EPAA.¹³ Lastly, a GAO report found that integrated training is not occurring across the BMDS. Due to the size and number of assets, only 7 of 45 BMD exercises during a period from 2009 to 2010 included elements from the tactical, operational and strategic levels.¹⁴

The scrutiny endured by the EPAA from scholars and politicians can serve as a basis for improvement in the building of a PPAA. Although scarce, information regarding the capabilities of the North Korean missile brigades provides a starting point from which to form a capable defense system. The GAO and CRS have identified shortfalls and gaps in the current design of the U.S. BMDS. Through the execution of the EPAA and further testing of BMD technology, a feasible PPAA can be produced that will satisfactorily address the threat posed in the Pacific region. The design of the PPAA relies on the examination and comparison of the North Korean and Iranian threats. Once the threat is understood, analysis of the EPAA will allow for an appropriate conceptual migration to the Pacific theater.

¹⁰ Cristina Chaplain, *Missile Defense: Mixed Progress in Achieving Acquisition Goals and Improving Accountability* (GAO-14-351) (Washington, DC: GAO, 2014), 17–19, <http://www.gao.gov/products/GAO-14-351>.

¹¹ Cristina Chaplain, *Standard Missile-3 Block IIB Analysis of Alternatives* (GAO-13-382R) (Washington, DC: GAO, 2013), 2, <http://www.gao.gov/assets/660/652079.pdf>.

¹² John H. Pendleton, *Ballistic Missile Defense: Actions Needed to Address Implementation Issues and Estimate Long Term Costs for European Capabilities* (GAO-14-314) (Washington, DC: GAO, 2014), 10–24, <http://www.gao.gov/products/GAO-14-314>.

¹³ Christina Chaplain, *Regional Missile Defense: DOD's Report Provided Limited Information; Assessment of Acquisition Risks is Optimistic* (GAO-14-248R) (Washington, DC: GAO, 2014), 22, <http://www.gao.gov/assets/670/661707.pdf>.

¹⁴ John H. Pendleton, *Ballistic Missile Defense: Actions Needed to Improve Training Integration and Increase Transparency of Training Resources* (GAO-11-625) (Washington, DC: GAO, 2011), 30–32, <http://www.gao.gov/assets/330/321144.pdf>.

C. NORTH KOREA

To best compare North Korea and Iran, a review of the ballistic missile programs and individual political situations is required. The successful satellite launch by the DPRK in late 2012 demonstrated advancements in intermediate-range ballistic missile (IRBM) and possible ICBM technology.¹⁵ In recent years, the DPRK has increased its rate of testing nuclear weapons by conducting underground detonations. If the DPRK combines ICBM technology with a nuclear warhead, then the DPRK could be capable of delivering a nuclear threat against the continental United States. Even if the DPRK only continues down the road of testing they stand the chance to mistakenly destroy a country and start an international crisis.

North Korea's recent history of aggression and deception begins with nuclear testing. In 1992, it became known to the world that the DPRK had taken nuclear material to be used for powering cities and converted it for weapons testing.¹⁶ In 2002, DPRK officials admitted to having the ability to enrich nuclear materials. North Korea's withdrawal from the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) in 2003 sparked international criticism. As a response, the United States, China, South Korea, Japan, and Russia invited North Korea to join a diplomatic discourse known as the Six Party Talks. The goal of the talks was to reach a peaceful resolution deterring North Korea's path toward nuclear proliferation. The talks continued sporadically for five years, but ultimately failed to produce identifiable results. North Korea conducted two nuclear tests in 2006 and 2009. After a successful long-range missile launch, the DPRK conducted a third nuclear weapons test in February 2013.¹⁷ As it appears, the DPRK is determined to become a nuclear power.

In tandem with the pursuit of nuclear weapons, North Korea has sought ballistic missile technology as a means of delivery. North Korea's prime focus, based upon its

¹⁵ Jethro Mullen and Paul Armstrong, "North Korea Carries Out Controversial Rocket Launch," *CNN World*, December 12, 2012, <http://www.cnn.com/2012/12/11/world/asia/north-korea-rocket-launch/>.

¹⁶ "North Korea," Arms Control Association, accessed July 26, 2014, <http://www.armscontrol.org/factsheets/northkoreaprofile>.

¹⁷ Ibid.

inventory, has always been South Korea. The DPRK owns thousands of short-range missiles and artillery batteries capable of reaching any point in South Korea.¹⁸ The medium- and intermediate-range missiles scattered throughout the DPRK pose a threat to Japan, Guam, surrounding East Asia island nations and possibly Hawaii.¹⁹ The immediate concern to the United States is North Korea's testing of long-range missiles and satellite launch vehicles.

North Korea took its first step toward a long-range ballistic missile with the testing of a single stage Taepo-Dong missile, on 31 August 1998, from its east coast facility. The missile failed in flight, but flew over the Honshu plain of Japan in the direction of Tokyo. In July 2006 and April 2009, the DPRK conducted unsuccessful tests of its Taepo-Dong missile, this time using two-stage rockets. In 2012, the DPRK began conducting satellite launch tests from its west coast facility. After another failed attempt in April 2012, North Korea finally achieved relative success in December 2012 by launching a three-stage Taepo-Dong missile that successfully placed a satellite in orbit. The launch was conducted on a southern trajectory. U.S. officials confirmed that the satellite was in orbit but not functional.²⁰ This launch can be interpreted as giving North Korea the ability to reach any target worldwide. In a worst-case scenario, the same launch trajectory could result in an atmospheric nuclear detonation above the east coast of the United States.²¹

The missile provoking most concern amongst security analysts is the KN-08, suspected to be a road mobile ICBM.²² The problem with a road mobile ICBM is that it provides little, if any intelligence warnings prior to launch. Road mobile launchers can be

¹⁸ Office of the Secretary of Defense, *Military and Security Developments Involving the Democratic People's Republic of Korea* (Washington, DC: The Pentagon, 2014), 19, http://www.defense.gov/pubs/North_Korea_Military_Power_Report_2013-2014.pdf.

¹⁹ Ibid.

²⁰ "North Korea," Arms Control Association, accessed July 26, 2014, <http://www.armscontrol.org/factsheets/northkoreaprofile>.

²¹ Peter Vincent Pry and R. James Woolsey, "How North Korea Could Cripple the US," *Wall Street Journal*, May 21, 2013. <http://online.wsj.com/news/articles/SB10001424127887324482504578455451910706908>.

²² "KN-08," Missile Threat, accessed July 6, 2014, <http://missilethreat.com/missiles/KN-08/>.

kept within underground facilities, prepared, and fueled for launch without being seen by satellites. When ready, the KN-08 could be deployed and launched within minutes. In this scenario, U.S. forces would need to remain on permanent alert status in the eventuality of a DPRK launch.

North Korea is likely using its missile testing in conjunction with acts of peace to achieve unknown longer-term goals. As an example of this tendency, during the months of June and July 2014, North Korea conducted seven short-range ballistic missile launches. The launches originated in close proximity to the tense North-South Korean border and landed in the western portion of the Sea of Japan. The DPRK stated that the launches were practice in preparation for the bombardment of military bases in South Korea. In a tradition of aggression tied to historic dates, the display also coincided with the anniversary of the cease-fire that concluded the Korean War in 1953. According to journalists, it is possible that this round of firing was being used as leverage to admit North Korean athletes into the upcoming Asian Games to be held in Incheon, South Korea.²³

The international community has responded to North Korean provocations through a combination of diplomatic and economic sanctions. In turn, the DPRK has followed the course of continued defiance. Many of the issues encountered when dealing with the DPRK are the result of an inability, on the part of the international community, to predict the North Korean actions and reactions. The seemingly irrational behavior of the leadership in the DPRK has resulted in the sinking of ROK Navy ship Cheonan (PCC-772), the artillery shelling of Yeonpyeong Island, multiple short-range surface to air missile launches, and the execution of party leader Jang Song Thaek.²⁴

The recent past of North Korea is riddled with senseless acts. On 26 March 2010, a North Korean torpedo sank the guided missile patrol boat ROKN Cheonan. Officials from North Korea denied any and all wrongdoing. North Korea stated that the findings of

²³ “Defying UN Censure, North Korea Blasts Missile Into Sea of Japan,” *Japan Times*, July 27, 2014, <http://www.japantimes.co.jp/news/2014/07/27/asia-pacific/defying-u-n-censure-north-korea-blasts-missile-into-sea-of-japan/#.U9VtNf2QD0s>.

²⁴ Daryl Kimball, “Chronology of US-North Korean Nuclear and Missile Diplomacy,” Arms Control Association, accessed June 5, 2014, <https://www.armscontrol.org/factsheets/dprkchron>.

a North Korean torpedo were completely false and fabricated by the South Korean government to create a crisis. It is clear that the death of 46 ROKN sailors came at the hands of a North Korean submarine in the vicinity of the maritime border.²⁵ Later that same year on 23 November 2010, North Korea fired artillery shells into the island of Yeonpyeong. The shelling killed two ROK marines and injured 15 more. The island lies only 8 miles from the disputed border and the artillery came as South Korea was conducting one of its largest annual military exercises. In response, South Korea returned artillery fire in the direction of the North Korea coastline and placed fighter jets on alert status.²⁶ This escalation heightened tensions to a level not seen in recent years.

The previously discussed belligerent actions by North Korea have provoked worldwide response. As a general rule, the United States has issued economic sanctions coupled with soft military actions in response to provocative actions by the DPRK. As a starting point, a Congressional Research Service report details the United States' relationship with North Korea in response to nuclear testing, including aid and sanctions.²⁷ The report states that the DPRK has received over \$1 billion dollars in aid from the United States since the 1990s. The economic aid has been primarily in response to threats issued by Pyongyang to continue their pursuit of nuclear technology or missile testing.

Similarly, Rolan Bleiker, a professor of international relations, wrote an article focusing on the shifting U.S. foreign policy beginning in the 1990s and continuing through the second North Korean nuclear crisis in the early 2000s. The conclusion of his article describes a no-win situation for the United States due to a complete misconception of the underlying driving force for North Korean foreign policy. He believes it is improbable to produce a productive response to North Korean provocations without understanding the highly secretive internal driving forces of the regime.

²⁵ "North Korean Torpedo Sank South's Ship," *BBC News*, May 20, 2010, <http://www.bbc.co.uk/news/10129703>.

²⁶ Mark McDonald, "Crisis Status in South Korea After North Shells Island," *New York Times*, November 23, 2010, http://www.nytimes.com/2010/11/24/world/asia/24korea.html?pagewanted=all&_r=0.

²⁷ Emma Chanlett-Avery and Ian E. Rinehart, *North Korea: U.S. Relations, Nuclear Diplomacy, and Internal Situation* (CRS Report No. R41259) (Washington, DC: Congressional Research Service, 2014), 14–22, <http://fas.org/sgp/crs/nuke/R41259.pdf>.

In light of the DPRK's actions, Bruce Klingner, a senior research fellow at the Heritage Foundation, wrote an opinion piece describing a course correction for our current policy.²⁸ Klinger's paper focuses on more contemporary issues and clearly desires to impose sanctions upon North Korea that are similar to those imposed on Iran. Klinger sees China as a likely political roadblock, but that China could eventually be persuaded to support tighter United Nation resolutions with added pressure from the international community.

The previously mentioned examples describe a pattern of threat, then sanction and eventually economic aid or negotiation that has resulted in a seeming confidence amongst the ruling party in the DPRK when dealing with the United States. Under the current course it seems that the DPRK will achieve nuclear weapons capability despite the disapproval of the international community. The DPRK has proven to be an irrational actor with sufficient missile technology en route to ICBM capability. In this light, the DPRK is a threat to allies and U.S. national security concerns, which requires a prepared response.

D. IRAN

Unlike North Korea, Iran has not launched a ballistic missile in a provocative direction. Similar to the DPRK, Iran has demonstrated a proficiency in short- and medium-range ballistic missiles. Likewise, Iran successfully launched a satellite in 2008, possibly experimenting with ICBM technology.²⁹ Nuclear facilities and technology within Iran, despite multilateral sanctions, continue to create tensions throughout the region. In response to Iran's display of missile technology and less-than-honest dealings in nuclear technology, the United States continues to send Navy ships to patrol the Persian Gulf in defense of Israel and European allies. By observation of actions, it is clear that the United States takes the Iranian threat seriously.

²⁸ Bruce Klinger, "Time to Get North Korean Sanctions Right," *Backgrounder*, no. 2850 (2013): 1–11, http://thf_media.s3.amazonaws.com/2013/pdf/BG2850.pdf.

²⁹ William J. Broad, "Iran Reports Test of Craft Able to Carry a Satellite," *New York Times*, August 17, 2008, http://www.nytimes.com/2008/08/18/world/middleeast/18iran.html?_r=0.

As recently as the summer of 2014, Iran took part in negotiations with the international community concerning its nuclear facilities. The discussions held in Vienna, Austria, were between Iran, the permanent members of the UN Security Council, and Germany. The talks took place to ensure Iran grants full access of its facilities to the International Atomic Energy Agency (IAEA).³⁰ The hope is that international inspectors will ensure Iran is in compliance with the NPT. Iran has expressed a desire to pursue nuclear technology for peaceful purposes, but has also threatened regional neighbor Israel with all-out war. Managing tensions in the region are key to U.S. national interests. While Israel remains the strongest ally to the United States in the Middle East, the hawkish nature of Israel in regards to Iran could escalate the already tenuous situation. The current Iranian inventory of missiles is capable of targeting Israel and Eastern Europe, but with further testing and a desire to maintain regional power, Iran is likely to develop ICBM technology capable of striking the United States and Western Europe.

Iran's nuclear program raises alarms because of potential to be combined with its missile program. According to Michael Elleman, a senior fellow for missile defense at the International Institute for Strategic Studies, "Iran has the largest and most diverse ballistic missile arsenal in the Middle East."³¹ Iran continues to be amongst the top nations in missile test launches. Iran began testing medium-range ballistic missiles (MRBMs) in 1998, likely based off the North Korean No Dong missile. In that last 16 years, Iran has conducted 26 MRBM test launches; 12 more than North Korea.³² Most disturbing is the possibility of an Iranian ICBM. The directors of National Intelligence and the Defense Intelligence Agency (DIA), James Clapper and Lt. General Michael Flynn, have both confirmed that Iran is capable of conducting an ICBM or space launch

³⁰ "Summary of the Understandings Related to the Implementation and Extension of the Joint Plan of Action," U.S. Department of State, July 22, 2014, <http://www.state.gov/r/pa/prs/ps/2014/07/229658.htm>.

³¹ Michael Elleman, "Iran's Ballistic Missile Program," United States Institute of Peace, accessed July 27, 2014, <http://iranprimer.usip.org/resource/irans-ballistic-missile-program>.

³² Greg Theilmann, "Iranian Missiles and the Comprehensive Nuclear Deal," *Arms Control Association*, May 7, 2014, http://armscontrol.org/files/Iran_Brief_Iranian_Missiles_Comprehensive_Nuclear_Deal.pdf.

vehicle test by 2015.³³ This capability places the U.S. and Europe within range of Iranian missiles. Although Iran has allowed the international community to inspect nuclear facilities, Tehran has declared its missile program as necessary to remain a global power.

Coupled with Iran's missile and nuclear weapons capability is a history of causing instability, similar to the DPRK. During the current Gaza-Israel conflict of 2014, Iran's Ayatollah Khamenei has urged all Muslims to join together in a stance against Israel.³⁴ Iran's Supreme Leader has gone so far as to say "the only solution is to destroy this regime."³⁵ While Iran has recently replaced Mahmoud Ahmadinejad with Hassan Rouhani as the President of Iran, the second highest post in the Iranian government, Rouhani continued the same stance of not acknowledging the holocaust. During a 2013 trip to the U.S., Rouhani agreed that the acts of the Nazis were reprehensible, but then later retracted his statement to be more in agreement with the hardliners in Iran.³⁶ The domestic politics of Iran involve balancing a group of religious ultra-conservatives with the economic needs of moderate Iranians. Iran has struggled economically under United Nations (UN) sanctions, but continues to appear unflinching in its hatred of Israel, the United States and allied European nations.

The most quantifiable way of gauging international response toward Iranian aggression are the numerous UN Security Council Resolutions (SCR) regarding Iran. To date, the UN has adopted six resolutions aimed at curtailing Iran's nuclear and ballistic missile programs.³⁷ The resolutions have been part of the P5+1 (permanent Security Council plus Germany) measures. UN SCR 1696, 1737, 1747, 1803, 1835 and 1929 imposed economic and military sanctions while requesting IAEA inspections of nuclear

³³ Bill Gertz, "Iran Still on Track for 2015 ICBM Flight Test," *Washington Free Beacon*, July 11, 2014, <http://freebeacon.com/national-security/iran-still-on-track-for-2015-icbm-flight-test/>.

³⁴ Michael Pizzi, "Thousands in Iran Protest Israeli Offensive in Gaza," *Aljazeera America*, July 25, 2014, <http://america.aljazeera.com/articles/2014/7/25/iran-gaza-protests.html>.

³⁵ "Khamenei: Keep Arming Palestinians Until Israel is Destroyed," *Times of Israel*, July 25, 2014, <http://www.timesofisrael.com/khamenei-keep-arming-palestinians-until-israel-is-destroyed/>.

³⁶ Mark Landler and Thomas Erdbrink, "Iran's Leader, Denouncing Holocaust, Stirs Dispute," *New York Times*, September 25, 2013, <http://www.nytimes.com/2013/09/26/world/middleeast/for-irans-leader-time-is-not-yet-right-for-meeting-obama.html?pagewanted=all&r=0>.

³⁷ Kelsey Davenport and Lauren Weiss, "UN Security Council Resolutions on Iran," Arms Control Association, August 2012, <http://www.armscontrol.org/factsheets/Security-Council-Resolutions-on-Iran>.

facilities.³⁸ Multiple resolutions were required due to Iran's non-compliance with previous measures.

The international community has attempted to curb Iranian nuclear and missile advancement through diplomatic means. Iran has proven to be deceitful in its pursuit of nuclear technology and outright defiant in its ballistic missile program. While the UN, led by the United States and regional partners, has attempted to stifle the Iranian economy in hopes of slowing defense spending, Iran remains a constant threat to the U.S. and allied national security interests. As all parties remain hopeful for a diplomatic and political solution, NATO and the United States are also planning for the worst-case scenario.

E. THE EPAA RESPONSE TO IRAN

If all diplomatic and peaceful means of negotiation result in failure, then a nuclear weapon delivered by ballistic missile originating from Iran poses a direct threat to the Middle East and Europe. To counter the threat of an Iranian missile, the United States has established a series of radars, sensors and command and control stations to defend regional partners now and in the future. The European Phased Adaptive Approach (EPAA) is in direct response to a possible Iranian launch against U.S. allies in the Middle East and Europe.

To begin, the United States has built the Ballistic Missile Defense System (BMDS) to counter a ballistic missile threat. The BMDS is composed of sensors, interceptors and communications assets. Upgraded Early Warning Radars (UEWR) are positioned in Alaska, California, Massachusetts, the UK and Greenland. The UEWR are capable of tracking ICBMs and providing intercept data to land based interceptors. Another sensor is the Sea Based X-band radar (SBX). SBX is a large X-band radar mounted on a mobile oil platform operated by the U.S. Navy under the command of the Missile Defense Agency (MDA). SBX is currently stationed in the Pacific and is capable of tracking ICBM threats while providing cueing data to land-based interceptors. Next, the AN/TPY-2 is a transportable X-band radar operated by the U.S. Army and currently deployed in Japan, the Middle East and Turkey. Lastly, the Space Tracking and

³⁸ Ibid.

Surveillance System (STSS) is a system of satellites capable of detecting intense heat signatures such as missile launches.³⁹

The BMDS also consists of assets capable of independent tracking and intercept. U.S. Navy cruisers and destroyers are capable of tracking all classes of ballistic missiles and intercepting all missiles except the ICBM. The U.S. Navy uses the Standard Missile-3 (SM-3) to conduct ballistic missile intercepts. Aegis Ashore is a U.S. Navy asset that mirrors the capabilities and equipment found on a ship, but places it on land to conduct the BMD mission. Terminal High Altitude Area Defense (THAAD) is a readily deployable, land-based U.S. Army asset capable of tracking and intercepting short to intermediate-range missiles in the terminal phase of flight. THAAD is mobile, but requires heavy-lift Air Force platforms for deployment. Patriot Advanced Capability-3 (PAC-3) is a U.S. Army point defense system capable of tracking and intercepting short-range missiles. PAC-3 also requires Air Force assistance for rapid deployment. This asset has also been purchased by several foreign militaries through the approval of congress. The only asset that requires the assistance of separate asset for tracking data is the Ground Based Interceptor (GBI).

GBIs are based in Alaska and California, operated by the U.S. Air Force, and are designed to defend the U.S. against an ICBM attack coming from either the west or east coast. The Obama administration approved an extra \$1 billion to add fourteen GBIs into the Fort Greely, Alaska site.⁴⁰ This addition will bring the total of GBIs to 44. These interceptors rely upon Aegis ships, AN/TPY-2 radars, SBX and UEWR for targeting and intercept capability. Finally, the BMDS utilizes a series of satellites and computer networks known as Command, Control, Battle Management, and Communications (C2BMC) to plan, practice and pass data throughout the global architecture.⁴¹

³⁹ "Sensors," Missile Defense Agency, last modified July 31, 2014, <http://www.mda.mil/system/sensors.html>.

⁴⁰ Amaani Lyle, "Hagel: U.S. Bolstering Missile Defense," *Armed Forces Press Service*, March 15, 2013, <http://www.defense.gov/news/newsarticle.aspx?id=119543>.

⁴¹ "A System of Elements," Missile Defense Agency, last modified April 28, 2014, <http://www.mda.mil/system/elements.html>.

The EPAA is broken into four distinct phases. The first phase utilizes existing AN/TPY-2 radars in Israel, Turkey and Qatar and then adds forward stationing of BMD capable ships in Rota, Spain. The ships in Rota, Spain can be used for multiple missions throughout the 6th Fleet Area of Responsibility (AOR), but are distinctly necessary to provide BMD coverage for eastern and central Europe. The second phase, to be completed by 2015, is the completion of an Aegis Ashore site in Romania. This base will provide increased sensor and interceptor coverage of Europe. The last planned phase of the EPAA is the installation of a second Aegis Ashore site in Poland. The site is planned to be online by 2018 and will add a layer of defense for the more western and northern European nations. The fourth phase of the EPAA was the deployment of the SM-3 Block IIB. The proposed upgrade to the Standard Missile was to be more capable against long range and possibly ICBM threats. The program has since been canceled in lieu of enhancements to the existing GBI program.⁴² The radars and interceptors have been linked by C2BMC and existing BMD networks to include data sharing amongst NATO allies.⁴³

The proposed deployment of BMD assets is possible because the missile defense situation in Europe involves an existing framework of political alliances centered on NATO. The 2009 announcement by U.S. President Obama to execute the EPAA was proclaimed to be a contribution to the overall NATO mission of BMD.⁴⁴ Under the current framework of the EPAA, the United States gains a more prominent position in European defense. The United States will benefit politically from the resulting increase in working relations between U.S. forces and the host nations.

⁴² John H. Pendleton, *Ballistic Missile Defense: Actions Needed to Address Implementation Issues and Estimate Long Term Costs for European Capabilities* (GAO-14-314) (Washington, DC: GAO, 2014), 3, <http://www.gao.gov/products/GAO-14-314>.

⁴³ Ibid., 10.

⁴⁴ John H. Pendleton, *Ballistic Missile Defense: Actions Needed to Address Implementation Issues and Estimate Long Term Costs for European Capabilities* (GAO-14-314) (Washington, DC: GAO, 2014), 1, <http://www.gao.gov/products/GAO-14-314>.

These partnerships, while aimed at Iran, have drawn criticism from Russia.⁴⁵ Russia has always viewed an increase in U.S. involvement in Europe as an affront to Russian supremacy. In addition to the existing two GBI sites in Alaska and California, President Bush announced a “third site plan” in 2007. This plan would have placed a series of GBIs into Poland.⁴⁶ Russia responded by threatening to place short and medium range ballistic missiles into sites on their southern and western borders. When President Obama took office in 2008, the situation of missile defense in Europe remained unresolved. NATO supported an increase of U.S. BMD assets in Europe, but the Obama administration sought to reshape U.S. foreign policy in regards to Russia. The 2009 announcement of the EPAA by the Obama administration was seen as less threatening to Russia while continuing to support NATO BMD.

While the EPAA and capabilities have been briefed to Russian leaders, they continue to contend that the EPAA poses a real threat to Russian strategic security. As briefed, the U.S. missile interceptors based in Poland and Romania are designed to have capability against a limited Iranian launch of medium or intermediate range ballistic missiles. The consensus opinion among scientists and strategists is that U.S. BMD does not have the capability to defeat an all-out ICBM attack by Russia.⁴⁷ Due to the vast amount of Russian ICBMs and the physics required to defeat the speeds reached by ICBMs, the policy of mutually assured destruction is the only real deterrent against a Russian attack.⁴⁸ Given the high level of missile technology in Russia it is unlikely that Russian politicians, strategists and military leaders view EPAA assets as a deterrent to

⁴⁵ Carmen-Cristina Cirlig, “Russian Reactions to NATO Missile Defence,” Library of the European Parliament, September 14, 2012, http://www.europarl.europa.eu/meetdocs/2009_2014/documents/sede/dv/sede271113librarybriefingmissile/sede271113librarybriefingmissile_en.pdf.

⁴⁶ Ibid.

⁴⁷ Carmen-Cristina Cirlig, “Russian Reactions to NATO Missile Defence,” *Library of the European Parliament*, September 14, 2012, http://www.europarl.europa.eu/meetdocs/2009_2014/documents/sede/dv/sede271113librarybriefingmissile/sede271113librarybriefingmissile_en.pdf.

⁴⁸ Joan Johnson-Freese and Ralph Savelsberg, “Why Russia Keeps Moving the Football on European Missile Defense: Politics,” *Breaking Defense*, October 17, 2013, <http://breakingdefense.com/2013/10/why-russia-keeps-moving-the-football-on-european-missile-defense-politics/>.

their own missile systems. The actual threat of the EPAA is the weakening of Russian influence in regards to regional and international geopolitics.

Regardless of political turmoil, the actual EPAA has not been without its faults. Congress has provided legislative oversight throughout the development of multiple BMD assets. On behalf of Congress, the GAO has investigated the status of GBI testing.⁴⁹ The GBI test in July 2013, FTG-07, was an unsuccessful trial of the CE-II kill vehicle. That same version of the GBI just recently achieved a successful intercept on 22 June 2014.⁵⁰ After two failed attempts, the CE-II modification will allow the Missile Defense Agency (MDA) to take receipt of upgraded GBIs, including the 14 requested by the Obama administration. The additional GBIs will be added to the existing facility in Fort Greely, AK. The GAO also released a report emphasizing the underperformance of GBI and the impact on future deployment.⁵¹ Amongst the limitations is the ability to replicate an inbound ICBM. All current tests of the GBI system have utilized a north to south trajectory, while an actual North Korean ICBM would be on a west to east trajectory.

The GAO has noted the possibility of incurring additional cost during SM-3 acquisition unless adequate preliminary testing is conducted.⁵² The SM-3 tests begin with preliminary flight runs and conclude with scenario-based SM-3 intercepts of ballistic missile test platforms. Due to an inflight failure of one SM-3 Block IB, the entire system came under scrutiny. Then the GAO analyzed the anticipated alternatives to the SM-3 Block IIB capabilities and found that the DOD does not have a proposed solution to

⁴⁹ Cristina T. Chaplain, *Missile Defense: Mixed Progress in Achieving Acquisition Goals and Improving Accountability* (GAO-14-481T) (Washington, DC: GAO, 2014), 4, <http://www.gao.gov/products/GAO-14-481T>.

⁵⁰ Daniel Wasserbly, "Next-Generation GMD Missile Scores Successful Intercept," *IHS Jane's Defence Weekly*, June 23, 2014. <http://www.janes.com/article/39875/next-gen-gmd-missile-scores-first-successful-intercept>.

⁵¹ Cristina Chaplain, *Missile Defense: DOD's report provides limited Insight on Testing Options for the Ground-based Midcourse Defense System* (GAO-14-350R) (Washington, DC: GAO, 2014), 16, <http://www.gao.gov/assets/670/662856.pdf>.

⁵² Cristina Chaplain, *Missile Defense: Mixed Progress in Achieving Acquisition Goals and Improving Accountability* (GAO-14-351) (Washington, DC: GAO, 2014), 26–28, <http://www.gao.gov/products/GAO-14-351>.

bridge the intercept ability of the SM-3 Block II-B.⁵³ The SM-3 Block IIB was set to be a navy response to the GBI, but has since been removed from the last phase of the EPAA.⁵⁴ At this point, the only ability to counter an inbound ICBM is with a GBI from the west coast of the United States.

The MDA has experienced setbacks while deploying Aegis ships and Aegis Ashore in support of the EPAA.⁵⁵ MDA and its subordinate commands experienced increased costs and gaps in support during initial deployment. Specifically with Aegis Ashore, the USN has never before had to station operational commanders on land in foreign nations conducting active defense missions. These Aegis Ashore stations in Romania, and then Poland, require manning and training that does not currently exist. This phase of deployment has not yet been correlated to supporting commands needed to establish a pipeline of qualified operators.

The EPAA has been viewed as a successful policy in regards to European alliance, but it lacked realistic planning for execution. A CRS report spoke about gaps in testing and procurement of Aegis Ashore, which could delay deployment of functioning systems.⁵⁶ In response to congressional inquiry, GAO has accused MDA of purchasing systems without conducting satisfactory testing to meet intended capabilities.⁵⁷ Finally, system wide training has been found to be lacking. Due to the size of the BMDS it has proven to be difficult organizing and executing an integrated training and exercise

⁵³ Cristina Chaplain, *Standard Missile-3 Block IIB Analysis of Alternatives* (GAO-13-382R) (Washington, DC: GAO, 2013), 17–18, <http://www.gao.gov/assets/660/652079.pdf>.

⁵⁴ Chuck Hagel, “Missile Defense Announcement” (speech, The Pentagon in Washington, DC, March 15, 2013). <http://www.defense.gov/speeches/speech.aspx?speechid=1759>.

⁵⁵ John H. Pendleton, *Ballistic Missile Defense: Actions Needed to Address Implementation Issues and Estimate Long Term Costs for European Capabilities* (GAO-14-314) (Washington, DC: GAO, 2014), 10–18, <http://www.gao.gov/products/GAO-14-314>.

⁵⁶ Christina Chaplain, *Regional Missile Defense: DOD’s Report Provided Limited Information; Assessment of Acquisition Risks is Optimistic* (GAO-14-248R) (Washington, DC: GAO, 2014), 35, <http://www.gao.gov/assets/670/661707.pdf>.

⁵⁷ Cristina Chaplain, *Missile Defense: Mixed Progress in Achieving Acquisition Goals and Improving Accountability* (GAO-14-351) (Washington, DC: GAO, 2014), 26–28, <http://www.gao.gov/products/GAO-14-351>.

schedule across tactical, operational and strategic commands.⁵⁸ If the EPAA is to be implemented properly, training will need to increase to meet current requirements.

The EPAA has been a bold move not only politically but militarily. The deployment of forces overseas utilizing new technologies has encountered growing pains. The setbacks have been the cost of attempting to tie action to policy. The testing of technology can be seen as slowing the process of deployment, but can also be seen as vital to deploying a capable force.

As an example of testing and active deployment, the United States partnered with Israel to create a layered ballistic missile defense system including Aegis platforms, AN/TPY-2 radars, PAC-3 batteries and the Israeli Iron Dome, David's Sling, and Arrow defense systems.⁵⁹ The United States has been able to learn from the deployment of forces in support of Israel's defense and implement them in the EPAA. As outlined in the EPAA, the permanent architecture includes AN/TPY-2 radars, Aegis Ashore, and the forward basing of Aegis platforms.⁶⁰ As the EPAA progresses, lessons can be gathered to benefit future versions of the Phased Adaptive Approach in other regions.

F. THE PPPA RESPONSE TO NORTH KOREA

Each time the DPRK threatens to launch a missile there is a new patchwork of assets brought to use. While there is a persistent layered defense network in the Central Command (CENTCOM) and European Command (EUCOM) areas of responsibility, Pacific Command (PACOM) and Northern Command (NORTHCOM) continue to change their concept of operations. The number and location of Aegis ships, PAC-3 batteries, use of Sea Based X-Band Radar (SBX), partnership with JSDF, and partnership

⁵⁸ John Pendleton, *Ballistic Missile Defense: Actions Needed to Improve Training Integration and Increase Transparency of Training Resources* (GAO-11-625) (Washington, DC: U.S. Government Accountability Office, 2011), 30–32, <http://www.gao.gov/assets/330/321144.pdf>.

⁵⁹ Office of the Secretary of Defense, *Director, Operational Test and Evaluation FY 2012 Annual Report* (Washington, DC: The Pentagon, 2012), 277–79, <http://www.dote.osd.mil/pub/reports/FY2012/>.

⁶⁰ John H. Pendleton, *Ballistic Missile Defense: Actions Needed to Address Implementation Issues and Estimate Long Term Costs for European Capabilities* (GAO-14-314) (Washington, DC: GAO, 2014), 32–34, <http://www.gao.gov/products/GAO-14-314>.

with ROK Army (ROKA) and ROK Navy (ROKN) have each been variables during every operation.⁶¹

Based on the need for BMD in the Pacific, there is cause to identify a valid path ahead for a Pacific Phased Adaptive Approach (PPAA). The platforms in use today must be paired with current forms of missile defense technology while keeping in mind future testing and upgrades. The sensors, interceptors and communications must be coordinated and de-conflicted by an established command and control structure in a PPAA.

The employment of previously mentioned BMD systems in a PPAA is likely similar to the EPAA. The first phase includes the forward basing of U.S. Navy Aegis cruisers and destroyers. There are currently five BMD capable ships in 7th Fleet and two more destroyers are en route.⁶² This number does not include the ships that transit through the 7th Fleet area of responsibility (AOR) headed to 5th Fleet. These ships require the necessary SM-3 interceptors to combat a North Korean launch. The issue at the heart of SM-3 interceptors is a question of production and allocation split between the 6th, 5th and 7th fleets.⁶³

The best-case scenario of a first phase PPAA includes ROK, JSDF and Australian naval forces. Currently ROK operates three destroyers capable of tracking, but not intercepting, ballistic missiles. In December 2012, the ROK requested three more Sejong the Great Class destroyers from the U.S. Joint Chiefs of Staff.⁶⁴ These ships will be equally capable of tracking missiles but will be equipped with the soon to be deployed SM-6. The ROK version of SM-6 will give ROKN forces increased ability to conduct surface and air warfare, but will still lack ballistic missile intercept capability.

⁶¹ Ian E. Rinehart, Steven A. Hildreth, and Susan V. Lawrence, *Ballistic Missile Defense in the Asia-Pacific Region: Cooperation and Opposition* (CRS Report No. R43116) (Washington, DC: Congressional Research Service, 2013), 8–12, <http://fas.org/sgp/crs/nuke/R43116.pdf>.

⁶² Marie-Louise Gumuchian, “U.S. to Send 2 More Missile Defense Ships to Japan to Protect from North Korea,” *CNN World*, April 7, 2014, <http://www.cnn.com/2014/04/06/world/asia/us-japan-ships/>.

⁶³ Ronald O’Rourke, *Navy Aegis Ballistic Missile Defense (BMD) Program: Background and Issues for Congress* (CRS Report No. RL33745) (Washington, DC: Congressional Research Service, 2014), 3–13, <http://fas.org/sgp/crs/weapons/RL33745.pdf>.

⁶⁴ Zachary Keck, “South Korea Navy Wants 3 More Aegis Destroyers,” *The Diplomat*, October 17, 2013, <http://thediplomat.com/2013/10/south-korea-navy-wants-3-more-aegis-destroyers/>.

The JMSDF currently operate six destroyers of the Kongou and Atago classes. Each destroyer is capable of tracking and intercepting ballistic missiles with the SM-3 Blk-1A, comparable to the current U.S. capability. JMSDF has also requested two more destroyers to meet the goal of eight BMD capable ships. With eight ships the JMSDF hopes to have enough ships ready to deploy and defend the homeland while conducting maintenance and repairs in a permanent rotation.⁶⁵

On the fringe of possible BMD capability is Australia. While Australia operates Aegis equipped destroyers, they lack BMD capability. Australia currently does not view BMD as a warfare area fundamental to their territorial integrity. The hope is that through expanding cooperation in the Asia Pacific region, the United States could leverage Australian capability to offset the burden of patrolling BMD operating areas in defense of U.S. or allied high value assets.⁶⁶

The second and third phases of the EPAA involve Aegis Ashore and forward positioned radars.⁶⁷ The PPAA would follow the same path as its predecessor. Radars are already in place throughout ROK and Japan. In October 2013, the United States and Japan announced a plan to deploy a second AN/TPY-2 radar near Kyoto, Japan. The radar will improve search and detect capability necessary to defend the Japanese and U.S. homeland against a North Korean ballistic missile attack.⁶⁸ Network and data sharing concerns have been difficult to overcome due to the historical angst between ROK and Japan. Previous attempts to form a trilateral data sharing agreement have failed in the

⁶⁵ “Japan’s Fleet BMD Upgrades,” *Defense Industry Daily*, May 16, 2014, <http://www.defenseindustrydaily.com/up-to-387m-for-japanese-naval-abm-components-0807/>.

⁶⁶ Ronald O’Rourke, *Navy Aegis Ballistic Missile Defense (BMD) Program: Background and Issues for Congress* (CRS Report No. RL33745) (Washington, DC: Congressional Research Service, 2014), 90, <http://fas.org/sgp/crs/weapons/RL33745.pdf>.

⁶⁷ John H. Pendleton, *Ballistic Missile Defense: Actions Needed to Address Implementation Issues and Estimate Long Term Costs for European Capabilities* (GAO-14-314) (Washington, DC: GAO, 2014), 32–34, <http://www.gao.gov/products/GAO-14-314>.

⁶⁸ “Japan, U.S. to Deploy Second TPY-2 Long-range Radar in Kyoto City,” *United Press International*, October 4, 2013, http://www.upi.com/Top_News/World-News/2013/10/04/Japan-US-to-deploy-second-TPY-2-long-range-radar-in-Kyoto-city/UPI-72751380865998/.

finals hours prior to signing.⁶⁹ Aegis Ashore could be a viable option for Guam, Hawaii or even the Honshu plain in Japan. Aegis Ashore has conducted initial testing in Barking Sands, Hawaii. The test facility in Hawaii is scheduled to begin intercept testing in conjunction with the EPAA deployment.⁷⁰ From initial reports, there is no reason to believe Aegis Ashore will be any less successful than Aegis intercepts conducted on cruisers and destroyers.

Once the military objectives have been stated in the PPAA, the legislative and diplomatic functions of the U.S. government must be synchronized. Future operations must be a balance of multinational forces to prevent the overuse of platforms and undue burden on any individual nation. In the Quadrennial Defense Review, the United States made missile defense a top priority.⁷¹ Through the stationing of forces in Japan⁷², Guam⁷³ and South Korea,⁷⁴ the United States is tied to the cooperative defense of regional allies. Due to the shared threat of missile attack amongst Pacific allies, the United States is in a unique position to broker mutual defense agreements, specifically regarding BMD. Missile defense requires the sharing of classified data across satellites and the use of specialized receivers to decrypt and use the data. The United States has all the technology and equipment necessary to conduct these missions, but has not solidified a trilateral or multilateral data sharing agreement between Japan, Korea or Australia. Personnel within the DOD can utilize the recent shift in U.S. national interest toward the Pacific to press politicians for increased cooperation at the international level.

⁶⁹ Ian E. Rinehart, Steven A. Hildreth, and Susan V. Lawrence, *Ballistic Missile Defense in the Asia-Pacific Region: Cooperation and Opposition* (CRS Report No. R43116) (Washington, DC: Congressional Research Service, 2013), 10–12, <http://fas.org/sgp/crs/nuke/R43116.pdf>.

⁷⁰ David Donald, “Aegis Comes Ashore in Romania,” *Aviation International News*, July 17, 2014, <http://www.ainonline.com/aviation-news/farnborough-air-show/2014-07-17/aegis-comes-ashore-romania>.

⁷¹ Chuck Hagel, *Quadrennial Defense Review* (Washington, DC: The Pentagon, 2014), x, http://www.defense.gov/pubs/2014_Quadrennial_Defense_Review.pdf.

⁷² “Treaty of Mutual Cooperation and Security Between the United States and Japan,” Ministry of Foreign Affairs of Japan, January 19, 1960, <http://www.mofa.go.jp/region/n-america/us/q&a/ref/1.html>.

⁷³ Robert Holzer and Scott Truver, “Aegis, Missile Defense and the U.S. Pivot,” *The Diplomat*, July 30, 2014, <http://thediplomat.com/2014/07/aegis-missile-defense-and-the-us-pivot/>.

⁷⁴ “Mutual Defense Treaty Between the United States and the Republic of Korea,” October 1, 1953, http://avalon.law.yale.edu/20th_century/kor001.asp.

A strong partnership with Japan is crucial for U.S. interests in the region. There are roughly 90,000 U.S. DOD personnel in Japan.⁷⁵ If a missile were fired into Japan, U.S. citizens and their politicians would expect a plan to be in place to protect our interests abroad. Japan recently took a large step toward mutual defense by announcing a reinterpretation of their constitution.

Prime Minister Shinzo Abe made news by stating that under the new interpretation, Japanese forces could come to the defense of allies without being directly attacked.⁷⁶ Prior to this statement Japanese forces could not intervene into a battle between two other nations such as China and the United States. This move comes amidst rising tensions in the first and second island chains where China has increased naval and air presence, thus provoking more and more response from Japanese and U.S. forces. South Korea, although not mentioned in Prime Minister Abe's announcement will bear some burden as a result of the change in policy. As Japan increases ties with the United States, China may feel threatened, which then places South Korea in awkward position of opposing Chinese territorial expansion, but still attempting to resist bilateral ties to the Japanese military while maintaining partnership with the United States.

As Japan tightens ties with the United States, the ROK announced it will not pursue a U.S. led BMD system for the defense of Korea.⁷⁷ South Korea has instead decided to implement its own domestic systems known as the Korean Air and Missile Defense (KAMD) system and Kill Chain. This move will likely stop any conversation about adding an intercept capability to the Korean Aegis equipped ships. The only exception seems to be THAAD. The new defense minister Han Min-koo has said that THAAD could have a place in the defense architecture for South Korea.⁷⁸ THAAD can be a diplomatic solution to adding U.S. BMD into South Korea without provoking a

⁷⁵ "Headquarters U.S. Forces Japan," U.S. Forces Japan, accessed July 21, 2014. <http://www.usfj.mil>.

⁷⁶ Alexander Martin and Toko Sekiguchi, "Japan Policy Shift to Ease Restrictions on Military," *Wall Street Journal*, July 1, 2014, <http://online.wsj.com/articles/japan-policy-shift-to-ease-restrictions-on-military-1404211813>.

⁷⁷ Hwang Sung-see, "S. Korea Will Not Adopt US-led Missile Defense System: Defense Minister Nominee," *Arirang News*, June 29, 2014, http://www.arirang.co.kr/news/News_View.asp?nseq=164667.

⁷⁸ Sarah Kim, "Korea Coming Around to THAAD Idea," *Korea JoongAng Daily*, July 22, 2014. <http://koreajoongangdaily.joins.com/news/article/Article.aspx?aid=2992350>.

response from China. THAAD is only capable of defending a limited area against short or medium range missiles; ideal for the North Korean threat against South Korea. The newly selected defense minister in ROK can have a significant impact in regional BMD going forward by either electing to pursue domestic technology or by expanding international partnerships in defense. Regardless of origin, ROK BMD can contribute to the PPAA.

G. IMPLICATIONS

The current U.S. foreign policy in regards to Iran and the DPRK has been a series of negotiations and sanctions. The United States and allies view Iran as capable of a missile attack and have thus announced the EPAA combat the threat. While the DPRK has been labeled as a rogue nation and capable of a provocative first strike, the United States still lacks a concrete military strategy to combat a worst-case scenario.

There must be a long-term path to success, similar to the EPAA, for BMD in the Pacific theater. It will require the partnership of multiple nations to share the burden financially and militarily. After reviewing the real world events, capabilities, and limitations, a recommendation for use of available sensors, tested interceptors, and unified communications architecture can be proposed. To reach the relative level of success of the EPAA, the PPAA must first be created. The PPAA concept of operations and supporting assets will likely be similar to the EPAA but augmented for geography, threat, regional constraints and available assets. The PPAA will be formed from the triad of sensors, interceptors and communications, all being coordinated by a unified command structure.

Once designed, the PPAA can then be proposed by the DOD, through the White House, as a piece of legislation to gather required funding from the U.S. Congress. The deployment of assets such as Aegis Ashore or the acquisition of SM-3s requires the power of the purse, delineated to the U.S. Congress. If approved by the U.S. Congress, the PPAA will have enhanced legitimacy. Diplomats and military liaisons to achieve informal, and later formal, agreements at the bilateral and multilateral level can leverage this legitimacy.

The PPAA will be a significant statement of U.S. foreign policy and bring military actions into alignment with U.S. strategic interests in the Pacific theater. The political difficulties of pursuing a PPAA seem daunting. To form alliances between bitter rivals (Japan and ROK) without provoking a response from the regional power (China) will require a unified strategic objective to be executed in the military, legislative and diplomatic arenas simultaneously. The result of the PPAA will be a permanent defense structure, which increases security cooperation throughout the Pacific theater.

H. RESEARCH DESIGN

The satellite launch in 2012 was the only successful long-range launch by DPRK. The ROK, Japan and U.S. military platforms were employed to defend regional and national assets. This event served as a real world event stressing the BMDS and BMD capabilities of regional allies. Through the identification of strengths and flaws in the system, review of lessons learned, and advancement of BMD technologies, a flexible and capable defense design can be created similar to the EPAA.

After developing a background of current events, the cost and availability of military assets will be discussed. BMD revolves around the triad of sensors, interceptors and communications. Coordinating each capability requires a sound command structure. Each asset requires justification for funding. Once funded, assets are employed based upon operational needs and perceived threats. BMD platforms are constantly being tested and modified to ensure reliability. As budget concerns grow, procurement and testing will be integral to equipping the military with capable platforms. Testimony before congress, proposed budgets and testing reports will be consulted for this portion of the paper. Scholarly journals and newspaper articles will be used to create context for the data intense portions.

Next the opportunities and constraints of the diplomatic arena will be reviewed. The opportunities include policy shifts as the U.S. military aligns toward the Pacific and increases ties with regional allies. Constraints include the opposition of regional powers and the costs of improving relationships with regional allies. Testimony before congress,

Department of State press releases, and scholarly articles will be used for support. Newspaper articles will be used to create background.

After reviewing the real world events, capabilities, and limitations a recommendation for use of available sensors, tested interceptors, and unified communications architecture will be proposed. This concept of operations and supporting assets will likely be similar to the EPAA but augmented for geography, threat, regional constraints and available assets.

I. OVERVIEW AND CHAPTER OUTLINE

The introduction is a background and comparison of North Korea and Iran. To counter the Iranian threat, the US and NATO have announced the EPAA. The assets in the Pacific region lack persistent bilateral or trilateral agreements to ease cooperation and coordination.

The next chapter details the military factors concerning a possible PPAA. First there will be an examination of the current EPAA execution. The military budget and manning issues will be reviewed. This section will also describe the current state of testing and technology as well as planned tests going forward.

The third chapter will focus on the supporting role of the U.S. government in advancing the goals of the PPAA. To be on par with the EPAA, the PPAA will require funding, international agreements and the support of the executive branch. The focus here will shift to policy and grand strategy vice military concepts of operations.

After reviewing the obstacles to success, the heart of the thesis will be the proposal of a PPAA. The PPAA will be a unified structure of sensors, shooters, and communications across the Pacific region utilizing allied assets and personnel in conjunction with the U.S. BMDS. The PPAA may likely mirror the EPAA with the addition or deletion of assets to account for threat, geography and ally capabilities.

The conclusion will summarize the historical context and steps already taken to create a BMD structure in the Pacific. Finally, the feasibility of plan execution and likely actions to be taken by the U.S. will be proposed as a matter for future research.

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II. MILITARY CAPABILITY, COST, AND AVAILABILITY

The first chapter outlined how the DPRK ballistic missile program is a threat to the Pacific region and the United States. The next step is to form a baseline of current capabilities. The format and costs of the European Phased Adaptive Approach (EPAA) will be critiqued to determine the feasibility of a unilateral or multilateral effort in the Pacific. Next, reviewing Ballistic Missile Defense (BMD) program costs in respect to the President's Budget Request will provide a reference point for future acquisition. As missile defense involves procurement and testing simultaneously, the state of testing will be reviewed in an attempt to forecast procurement issues. Last, there will be a review of recently cancelled programs and those programs still in the research and development phase. The feasibility of a PPAA is directly related to the success or failure of the EPAA, cost of platforms, and platform availability. A positive step toward the PPAA is planning realistically for execution by identifying the contributing factors in regards to the U.S. military.

A. EPAA STRUCTURE AND ASSOCIATED COSTS

Phase I of the EPAA allowed the U.S. Navy to gain a more permanent foothold in the Mediterranean Sea. On October 5, 2011, then Secretary of Defense Leon Panetta announced that Spain would host the stationing of four Aegis destroyers capable of contributing to the EPAA.⁷⁹ This move to add forces to the European theater came amidst a controversial decision to remove Army forces for budgetary reasons. In 2012, the Obama administration confirmed it would be rotating two of the four Army brigades stationed in Europe back to the United States. The redeployment of these brigades was agreed upon in order to save an estimated \$487B through 2022.⁸⁰ In order to resolve the ambiguity, the GAO reviewed the U.S. Navy's alternatives to the forward stationing of

⁷⁹ "SECDEF Announces Stationing of Aegis Ships in Rota, Spain," U.S. Department of Defense Public Affairs, October 5, 2011, http://www.navy.mil/submit/display.asp?story_id=63109.

⁸⁰ Greg Jaffe, "2 Army Brigades to Leave Europe in Cost Cutting Move," *The Washington Post*, January 12, 2012, http://www.washingtonpost.com/world/national-security/army-brigades-to-leave-europe/2012/01/12/gIQAqZqluP_story.html.

ships and found the U.S. Navy's estimate of alternatives to be "inconsistent and incomplete."⁸¹ The U.S. Navy has recently moved to favor the stationing of ships in forward bases to be closer to areas of interest. The U.S. Navy has added forward deployed assets to Bahrain, Guam, Japan, Singapore and now Rota, Spain. A CRS report has estimated that it will cost \$92M to move the four ships and their dependents to Rota and then an additional \$100M annually to support operations.⁸² In a response to the GAO report, the U.S. Navy considers the immediate cost of forward basing to be less expensive than rotating crews and ships from bases within the United States. In a final counter, the GAO reviewed these estimated and determined they lacked long term forecasting for depot level maintenance that can radically increase associated costs.⁸³

The Command, Control, Battle Management and Communications (C2BMC) system has been installed at NATO's Alliance headquarters in Ramstein, Germany, as part of the initial phase of the EPAA. The C2BMC has been integrated into NATO's Active Layered Theater Ballistic Missile Defense (ALTBMD). ALTBMd was originally designed to protect NATO troops but has been expanded to provide missile defense for all NATO population centers.⁸⁴ According to a NATO media press release in 2012, the alliance will pay for the cost of the command and control system evenly across the 28 member states. The shared cost for all BMD efforts across Europe was expected to be roughly 90M Euros annually between 2012 and 2020.⁸⁵ An individual cost assessment of implementing the C2BMC node capable of integrating into NATO's ALTBMd system could not be found. As a means of forming an estimate, according to testimony before a U.S. Senate committee hearing, the cost of operating the C2BMC across all sites for

⁸¹ Jennifer H. Svan, "GAO: Full Cost of Europe Force Structure Not Known," *Stars and Stripes*, June 8, 2012, <http://www.stripes.com/news/gao-full-costs-of-europe-force-restructure-not-known-1.179878>.

⁸² Christopher Cavas, "First U.S. BMD Ship Leaves for Rota," *Defense News*, February 1, 2014, <http://www.defensenews.com/article/20140201/DEFREG02/302010026/First-US-BMD-ship-leaves-Rota>.

⁸³ Jennifer H. Svan, "GAO: Full Cost of Europe Force Structure Not Known," *Stars and Stripes*, June 8, 2012, <http://www.stripes.com/news/gao-full-costs-of-europe-force-restructure-not-known-1.179878>.

⁸⁴ "Ballistic Missile Defence," North Atlantic Treaty Organization, July 18, 2014, http://www.nato.int/cps/en/natolive/topics_49635.htm.

⁸⁵ "NATO BMD Programme," North Atlantic Treaty Organization, October 8, 2012, http://www.nato.int/nato_static/assets/pdf/pdf_2012_10/20121008_media-backgrounder_Missile-Defence_en.pdf.

FY14 was \$418M.⁸⁶ This is the same number printed in a budget item justification released by the MDA, stating that the total program requested budget for the C2BMC during FY14 was \$418M.⁸⁷

The BMD elements under most scrutiny are the Aegis Ashore sites in Romania and Poland. The site in Romania was commissioned on October 10, 2014.⁸⁸ The U.S. Navy and MDA have reached an agreement regarding funding for the construction and maintenance for the immediate future. The MDA has agreed to fund the construction cost of BMD facilities and supporting Aegis components. The U.S. Navy will fund the training facility in the United States and the supporting facilities for personnel in Romania and Poland.⁸⁹ Each organization has also produced cost estimates for the near future. The U.S. Navy has projected a combined cost of \$155M for manning, supporting and operating the European sites over the next four fiscal years. The MDA has stated that it will contribute roughly \$82M toward the operating and support of the Aegis Ashore sites and training facility over the same time period. The Navy and MDA have decided to produce a joint cost estimate for a 25-year operating cycle, but have not released a timeline for completion.⁹⁰ The Aegis Ashore test site at Pacific Missile Range Facility (PMRF) in Kauai, Hawaii has become operational and completed a successful test

⁸⁶ *Department of Defense Appropriations for Fiscal Year 2014: Subcommittee of the Committee on Appropriations, United States Senate*, 113th Cong. (2013) (statement of Vice Admiral James D. Syring, Director, Missile Defense Agency, Washington, DC).

⁸⁷ “Budget Justification: Ballistic Missile Defense Command and Control, Battle Management and Communication,” Missile Defense Agency, 21, April 2013, <https://www.bga-aeroweb.com/Defense/Budget-Data/FY2014/BMD-CCBMC-MDA-RDT&E-FY2014.pdf>.

⁸⁸ Steven Beardsley, “Navy to Commission Missile Defense Base in Romania,” *Stars and Stripes*, October 9, 2014, <http://www.stripes.com/news/navy-to-commission-missile-defense-base-in-romania-1.307364>.

⁸⁹ “Budget Justification: Ballistic Missile Defense Command and Control, Battle Management and Communication,” Missile Defense Agency, 21, April 2013, <https://www.bga-aeroweb.com/Defense/Budget-Data/FY2014/BMD-CCBMC-MDA-RDT&E-FY2014.pdf>.

⁹⁰ John H. Pendleton, *Ballistic Missile Defense: Actions Needed to Address Implementation Issues and Estimate Long Term Costs for European Capabilities* (GAO-14-314) (Washington, DC: GAO, 2014), 21, <http://www.gao.gov/products/GAO-14-314>.

intercept on May 20, 2014.⁹¹ As more testing is conducted, any setback could have a direct effect on the forward stationed Aegis Ashore sites.

As Phase II of the EPAA is underway, it is possible that budgeting and accounting have taken a backseat to the deployment and employment of forces overseas. While these actions have allowed the executive branch and DOD to meet the deadlines outlined during the announcement of the EPAA, there will be constraints going forward requiring the reallocation of funds. As an example, THAAD has been listed as a ready asset in the EPAA, but there have not been any studies conducted for proposed sites and associated funding required.⁹² The GAO has identified the lack of long term cost estimates by MDA, but this action alone is unlikely to change business practices within the MDA. As per the Chief Financial Officer of the DOD, outlined in the Defense Budget Summary for FY15, the MDA has been afforded \$7.5B for 12 months of operating, researching, testing, developing and employing missile defense assets to defend the U.S. homeland.⁹³ This agency's budget pales in comparison to the overall DOD budget request of nearly \$500B, but when combined with allocations from other branches the MDA remains a bulky sector of defense spending.

B. PLATFORM AVAILABILITY AND COSTS

The increased need for BMD platforms is being balanced against the U.S. military's need to conduct other combat missions under the fiscal oversight of the U.S. congress. The individual services contribute differently to the deployment of sensors, interceptors and command and control assets. While BMD is not a top priority for any specific branch, it remains key to allocation of current and future funding. The U.S. Navy

⁹¹ "Standard Missile Completes First Test Launch from Aegis Ashore Test Site," U.S. Department of Defense, May 21, 2014, <http://www.defense.gov/releases/release.aspx?releaseid=16714&source=GovDelivery>.

⁹² John H. Pendleton, *Ballistic Missile Defense: Actions Needed to Address Implementation Issues and Estimate Long Term Costs for European Capabilities* (GAO-14-314) (Washington, DC: GAO, 2014), 4, <http://www.gao.gov/products/GAO-14-314>.

⁹³ "United States Department of Defense Fiscal Year 2015 Budget Request Overview," Office of the Undersecretary of Defense Chief Financial Officer, 71–2, March 2014, http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2015/fy2015_Budget_Request_Overview_Book.pdf.

has traditionally lobbied for increased SM-3 inventory and Aegis ships. The U.S. Army considers ground based and THAAD as fundamental for ensuring U.S. security interests. Last, the U.S. Air Force has supported the role of early warning radars and persistent satellite coverage. Each service branch has shaped their organizational values to meet a portion of the BMD mission while continuing to battle against competing interests within their own services.

The U.S. Navy contributes to the BMDS with sensors and interceptors onboard ships and with Aegis Ashore. Central to any debate within the U.S. Navy is the number of ships in the fleet. Since the release of a force structure assessment completed in 2012, U.S. Navy proponents have sought to maintain and establish a 306-ship navy.⁹⁴ Fortunately for those in favor of the DDG and guided missile cruiser (CG) programs, surface patrollers have been central to the BMD mission through the use of the Aegis Combat System (ACS).

There are currently, 85 cruisers and destroyers in the fleet.⁹⁵ Due to budgetary concerns, half of the deployable CGs (22 in active service) are entering a layup phase and will not be at sea for a portion of the next decade.⁹⁶ The cruisers will return to operational status as older cruisers are decommissioned starting in FY2019. This adjustment is necessary to prolong the lifecycle and availability of cruisers. While these ships will not be in active duty, the number of Aegis BMD capable CGs will continue to be counted as part of the BMD force structure. The DDG program has continued to receive funding for the planned construction of 2 DDGs each year for the next five years.⁹⁷ These DDGs are slated to be equipped with the ACS and thus BMD capable.

⁹⁴ “Report to Congress on the Annual Long-Range Plan for Construction of Naval Vessels for FY2015,” Deputy Chief of Naval Operations Integration of Capabilities and Resources N8, 4, June 2014, <http://navylive.dodlive.mil/files/2014/07/30-year-shipbuilding-plan1.pdf>.

⁹⁵ Ronald O’Rourke, *Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress* (CRS Report No. RL32665) (Washington, DC: Congressional Research Service, 2014), 7, <http://fas.org/sgp/crs/weapons/RL32665.pdf>.

⁹⁶ Ibid., 15.

⁹⁷ Ibid., Pg 3.

Of the 85 ships in the fleet, currently only 30 are BMD capable. There are 16 BMD ships stationed in the Pacific with the remaining number in the Atlantic region.⁹⁸ The current outline provided by MDA projects the number of BMD capable ships through FY2019 at 43.⁹⁹ This number of 43 Aegis BMD ships includes four Aegis cruisers that could enter a reduced operating status as part of the CG modernization plan. Three of these cruisers are stationed in the Pacific. Currently, there is not a plan to increase the current number of ships stationed in Rota, Spain. This implies that the BMD mission will be fulfilled with the current deployment of four DDGs. There are presently five BMD ships stationed with Forward Deployed Naval Forces (FDFN) Yokosuka, Japan¹⁰⁰ with another three DDGs set to shift homeports from the west and east coasts of the United States to FDFN Japan by 2017.¹⁰¹ While this implies the number of BMD ships will increase by three, the USS Shiloh was listed on the CG modernization plan and will be moved away from FDFN Japan without a stated CG replacement.¹⁰² Also, there is a permanent BMD test ship that draws from the number of deployable forces. The USS Lake Erie was the most recent test ship stationed in Pearl Harbor, Hawaii and is set to be replaced by the USS John Paul Jones.¹⁰³ Without an FDFN station in the 5th Fleet Area of Responsibility (AOR), ships will continue to deploy from U.S. homeports, including Hawaii and San Diego, in order to fulfill the BMD missions related to Iran. There is a constant rebalancing of forces based on mission needs and the limited quantity of forces.

⁹⁸ “Aegis Ballistic Missile Defense,” Missile Defense Agency, July 31, 2014, http://www.mda.mil/system/aegis_bmd.html.

⁹⁹ Ronald O’Rourke, *Navy Aegis Ballistic Missile Defense (BMD) Program: Background and Issues for Congress* (CRS Report No. RL33745) (Washington, DC: Congressional Research Service, 2014), 3, <http://fas.org/sgp/crs/weapons/RL33745.pdf>.

¹⁰⁰ Gopal Ratnam and Isabel Reynolds, “U.S. to Boost Missile Defenses in Japan Against North Korean Threat,” *Bloomberg*, April 6, 2014, <http://www.bloomberg.com/news/2014-04-06/u-s-to-boost-missile-defenses-in-japan-against-n-korean-threat.html>.

¹⁰¹ “U.S. Navy’s Overseas Force Structure Changes Underscore Commitment to the Asia-Pacific,” U.S. Pacific Fleet Public Affairs, October 16, 2014, <http://www.cpf.navy.mil/news.aspx/010324>.

¹⁰² Ronald O’Rourke, *Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress* (CRS Report No. RL32665) (Washington, DC: Congressional Research Service, 2014), 15, <http://fas.org/sgp/crs/weapons/RL32665.pdf>.

¹⁰³ Sam Fellman, “2 Destroyers Heading to Hawaii in Summer Homeport Shift,” *Navy Times*, January 8, 2014, <http://www.navytimes.com/article/20140108/NEWS/301200002/2-destroyers-heading-Hawaii-summer-home-port-shift>.

After examining the extra responsibilities for BMD ships, the projected 17 ships in the Pacific may not be enough. First, three of these ships will enter layup for CG modernization bringing the total to 14. Next, one of the ships will support the Missile Defense Agency's (MDA) Integrated Master Test Plan (IMTP), reducing the available number to 13. Assuming the FDNF Japan ships do not receive a replacement for USS Shiloh, there will be seven BMD ships in Yokosuka, Japan. Hawaii will lose two cruisers but gain a test ship, leaving it with four BMD capable ships. This means that there will only be three BMD ships left in San Diego, CA. The Hawaii and San Diego ships will continue deployments to 5th Fleet in support of BMD and Carrier Strike Group (CSG) operations at an increased tempo due to the loss of one BMD ship from the Atlantic. While it may appear that the Pacific region has more assets than those charged with the defense of Europe, the EPAA is adding sole purpose sensors and interceptors by employing two Aegis Ashore sites.

Even as the number of Aegis equipped ships is on the rise, there are a limited number of SM-3s that provide these ships with an engagement capability. The current number of SM-3s in the inventory is 144¹⁰⁴ at a price tag between \$9M¹⁰⁵ and \$13M each.¹⁰⁶ These missiles are distributed between the component commanders by Joint Functional Component Command for Integrated Missile Defense (JFCC IMD).¹⁰⁷ The missiles are needed aboard ships for real world events but also needed for future testing in scenarios for system certification. The MDA has already lowered its requested budget for missile procurement significantly between FY14 and FY15. The FY15 budget request results in a total of 543 SM-3s procured (used for testing, inventory and aboard ships) by

¹⁰⁴ Ronald O'Rourke, *Navy Aegis Ballistic Missile Defense (BMD) Program: Background and Issues for Congress* (CRS Report No. RL33745) (Washington, DC: Congressional Research Service, 2014), 8, <http://fas.org/sgp/crs/weapons/RL33745.pdf>.

¹⁰⁵ "Raytheon Receives \$350M SM-3 Block IB Contract," *PRN News Wire*, March 6, 2014, <http://www.prnewswire.com/news-releases/raytheon-receives-350-million-sm-3-block-ib-contract-248885631.html>.

¹⁰⁶ Martin Sieff, "Obama, Gates Take Aim at Israel's Arrow-3 Missile," *United Press International*, April 9, 2013, http://www.upi.com/Business_News/Security-Industry/2009/04/09/Obama-Gates-take-aim-at-Israelis-Arrow-3-missile/UPI-62611239291461/.

¹⁰⁷ "JFCC IMD Fact Sheet," JFCC IMD Public Affairs Office, November 2013, <http://www.smdc.army.mil/FactSheets/JFCC-IMD.pdf>.

FY2019, which is 132 fewer than requested under the FY14 budget.¹⁰⁸ SM-3s are being fielded in differing increments across the globe while testing is ongoing. As production continues in the United States, the Japanese have stepped up production of SM-3s at their own domestic facilities.¹⁰⁹ The Japanese Self Defense Force (JSDF) is well aware of current lack of missiles and is working to establish their independent security architecture.

The Aegis Ashore sites in Europe will require 24 SM-3s each, which will tip the scales in favor of EUCOM in the quest for garnering limited SM-3s.¹¹⁰ The incremental deployment of SM-3s is based upon the funded amount, the requested amount and the perceived threat. Without the ability to foresee testing failures, leading to recall and on-site repair of deployed assets, the fleet is expected to receive 267 missiles for inventory by FY2019.¹¹¹ Assuming the Aegis Ashore sites utilize 24 interceptors each, there would be 219 SM-3s available for ships at sea. If the test ship employs at the most five missiles for testing, then there would be 214 missiles available. If the remaining missiles are distributed evenly amongst fleets, then 6th, 5th and 7th fleet would receive 71 missiles each. There are risks to placing too many missiles onboard any one ship, so if they were divided evenly amongst the FDNF ships in Japan (seven ships not including USS Shiloh), each ship would receive 10 missiles. If some missiles were left in reserve for reload capability then each ship could receive eight with 22 in reserve. This would leave missiles for a possible surge from Hawaii or San Diego in the event of hostilities. When compared to the missile inventories of Iran and North Korea, it is evident that if SM-3s are necessary for defense the efficient use of these missiles should be a top priority.

¹⁰⁸ Ronald O'Rourke, *Navy Aegis Ballistic Missile Defense (BMD) Program: Background and Issues for Congress* (CRS Report No. RL33745) (Washington, DC: Congressional Research Service, 2014), 17, <http://fas.org/sgp/crs/weapons/RL33745.pdf>.

¹⁰⁹ "Standard Missile 3 Block 2A Cleared for Production," Nuclear Threat Initiative, November 1, 2013, <http://www.nti.org/gsn/article/standard-missile-3-block-2a-passes-critical-design-review/>.

¹¹⁰ "Alaska's Ground Based Interceptors to Pivot U.S. Defenses Against North Korea," Defense Update, March 16, 2013, http://defense-update.com/20130316_alaska-to-pivot-us-missile-defenses-again.html#.VDVoaL6RPGg.

¹¹¹ Ronald O'Rourke, *Navy Aegis Ballistic Missile Defense (BMD) Program: Background and Issues for Congress* (CRS Report No. RL33745) (Washington, DC: Congressional Research Service, 2014), 17, <http://fas.org/sgp/crs/weapons/RL33745.pdf>.

While the use of SM-3s and Aegis has been steadfast, Sea Based X-band radar (SBX) is increasingly controversial due to reliability and sustainability concerns. The SBX is a massive X-band radar stationed atop a mobile drilling platform. The platform was transitioned to the Military Sealift Command (MSC) in 2012 while the mission package and radar remain under the command of the MDA. Due to budget concerns and increased maintenance costs, the MDA has placed the SBX into a reduced operational status. The SBX can still be sent to sea in the event of probable missile launch, but will otherwise be used for testing of the BMDS on a limited basis. This move will save the MDA \$670M over the next five years. The reduced operations will place the burden of sensor coverage on FDNF Japan ships and Cobra Dane in Alaska.¹¹² The high fidelity tracking and mobility of SBX make it ideal for tracking a threat across the Pacific Ocean while providing cue data to GBIs. In 2011, MDA affirmed that the BMDS can continue to function without SBX and that the threat requiring the capabilities of SBX does not yet exist in North Korea.¹¹³ SBX remains a necessary part of the BMDS providing sensor coverage across the vast expanse of the Pacific.

The U.S. Army's stake in the BMD mission is also involves sensors and interceptors. THAAD has taken a leading role in the BMD discussion as a readily available asset capable of defending critical infrastructure or forward deployed troops.¹¹⁴ Recent budget approvals have brought the deployable number of THAAD batteries to four, with plans for two more to be completed in the next 24 months.¹¹⁵ The batteries are stationed in Fort Bliss Texas. To date, only a single battery has conducted a rapid deployment.

¹¹² Cristina Chaplain, *Missile Defense: Opportunity to Refocus on Strengthening Acquisition Management* (GAO-13-432) (Washington, DC: U.S. Government Accountability Office, 2013), 80, <http://www.gao.gov/assets/660/654233.pdf>.

¹¹³ Ibid.

¹¹⁴ "Terminal High Altitude Area Defense," Lockheed Martin, March 7, 2013, <http://www.lockheedmartin.com/content/dam/lockheed/data/mfc/pc/thaad/mfc-thaad-pc.pdf>.

¹¹⁵ Joakim Kasper Oestergaard, "THAAD BMDS," Barr Group Aerospace, May 22, 2014, <https://www.bga-aeroweb.com/Defense/THAAD.html>.

A THAAD battery has been stationed in Guam since 2012 in response to the North Korean missile threat.¹¹⁶ The ongoing temporary assignment has cost unknown millions to date in order to defend the U.S. territory of Guam¹¹⁷ with an area equal to three times the size of Washington D.C. The mobility of THAAD makes it attractive to military planners and legislators alike. The system brings sufficient capability against short and intermediate missiles in defense of vital assets at a cost relative to its size.

When THAAD is mentioned, there is an obligation to mention PAC-3. The PAC-3 platform is a BMD asset on a smaller scale than THAAD. The PAC-3 provides point defense of vital infrastructure such as an individual base, runway or building. The most recent iteration of Patriot is readily deployable, available for foreign military sale, requires minimal support and proven in combat. Besides the United States, the Patriot system has been purchased by six European nations, eight Middle East nations and three states in East Asia.¹¹⁸ PAC-3 is mentioned as a viable asset in the EPAA, but the GAO is quick to point out that the U.S. Army has not conducted financial projections about possible deployment sites and associated costs.¹¹⁹ The most recent deployment of PAC-3 is along the Turkey-Syria border as a NATO effort to prevent stray Syrian missiles from entering Turkish air space.¹²⁰ In the scope of the EPAA, a PAC-3 battery is not a fundamental component for the greater security of Europe. The Patriot system is designed to defend against short-range ballistic missiles and thus is not justified as part of the grander defense architecture to counter an Iranian threat. In this instance, the DOD seems

¹¹⁶ David Burge, "THAAD Unit Finishes Up Historic First Deployment to Guam," *El Paso Times*, April 13, 2014, http://www.elpasotimes.com/news/ci_25559880/thaad-unit-finishes-up-historic-first-deployment-guam.

¹¹⁷ Armando Cordoba, "U.S. to Deploy Missile Defense System to Guam," *Guam Pacific Daily News*, April 8, 2013, <http://pidp.org/pireport/2013/April/04-08-03.htm>.

¹¹⁸ "PAC-1, PAC-2, PAC-3," *Missile Threat*, accessed July 10, 2014, <http://missilethreat.com/defense-systems/patriot-pac-1-pac-2-pac-3/>.

¹¹⁹ John H. Pendleton, *Ballistic Missile Defense: Actions Needed to Address Implementation Issues and Estimate Long Term Costs for European Capabilities* (GAO-14-314) (Washington, DC: GAO, 2014), 17, <http://www.gao.gov/products/GAO-14-314>.

¹²⁰ "Spain to Replace Dutch in Turkey Patriot Missile Deployment," *Hurriyet Daily News*, September 18, 2014, <http://www.hurriyetdailynews.com/spain-to-replace-dutch-in-turkey-patriot-missile-deployment.aspx?pageID=238&nID=71867&NewsCatID=359>.

validated in not spending the resources to identify future deployment sites. The PAC-3 is capable BMD platform, however, in regards to Iran it is incapable of intercepts.

Arguably the most successful of the U.S. Army's contributions to greater BMD is the AN/TPY-2. The AN/TPY-2 is a land-based radar capable of detection and tracking of all ballistic missile variants. When the AN/TPY-2 is combined with an intercept capability it is known as THAAD. The AN/TPY-2 is currently deployed in Qatar, Israel, Turkey and Japan.¹²¹ Japan is receiving a second radar in southern Japan at the Kyogamiskai Japanese Air Self Defense Force Base, providing sensor overlap in the Sea of Japan.¹²² This radar is being stationed in central Japan, alleviating radar stress currently placed upon Aegis ships at sea.¹²³ At the cost of \$172M per unit,¹²⁴ there are 4 in active service,¹²⁵ 4 stationed at Fort Bliss in Texas, with another three systems¹²⁶ being built. The MDA has confirmed that 12 radars will be built, but does not disclose proposed sites or if they will be part of THAAD batteries.¹²⁷ Two other radars are being built as part of THAAD batteries in a foreign military sale to the United Arab Emirates.¹²⁸

There is a growing movement to place a THAAD unit, using the AN/TPY-2, in South Korea to defend U.S. personnel and assets.¹²⁹ With recent elections and

¹²¹ Sydney J. Freedberg Jr., "Raytheon's 'Tippy Two' Radar Gets Back in the Budget – Knock on Wood," *Breaking Defense*, March 15, 2013, <http://breakingdefense.com/2013/03/raytheons-tippy-two-radar-gets-back-in-the-budget-knock-on/>.

¹²² Cheryl Pellerin, "Budget Constraints Won't Halt Asia-Pacific Rebalance, Work Says," *Department of Defense News*, October 1, 2014, <http://www.defense.gov/news/newsarticle.aspx?id=123308>.

¹²³ Stephen Harner, "DOD Plans Next Stage Arms Race with China; Deputy Secretary of Defense Work Speech to CFR," *Forbes*, September 30, 2014, <http://www.forbes.com/sites/stephenharner/2014/09/30/dod-plans-next-stage-arms-race-with-china-deputy-secretary-of-defense-work-speech-to-cfr/>.

¹²⁴ "Budget Justification: BMDS AN/TPY-2 Radars," *Missile Defense Agency*, March 2014, <https://www.bga-aeroweb.com/Defense/Budget-Data/FY2015/AN-TPY-2-MDA-PROC-FY2015.pdf>.

¹²⁵ "Army Navy / Transportable Radar Surveillance (AN/TPY-2) Fact Sheet," *Missile Defense Agency*, July 2014, http://www.mda.mil/global/documents/pdf/an_tpy2.pdf.

¹²⁶ *Ibid.*

¹²⁷ "Army Navy / Transportable Radar Surveillance (AN/TPY-2) Fact Sheet," *Missile Defense Agency*, July 2014, http://www.mda.mil/global/documents/pdf/an_tpy2.pdf.

¹²⁸ *Ibid.*

¹²⁹ Samuel Songhoon Lee, "Why Wouldn't South Korea Want U.S. Missile Defenses?" *CBS News*, June 3, 2014, <http://www.cbsnews.com/news/u-s-proposes-advanced-missile-defense-system-in-south-korea/>.

appointment of a new defense minister in the ROK, it seems possible that the United States could become more involved in ROK BMD. Defense Minister Han Min-koo has recently expressed that he would welcome a THAAD battery in ROK as “helpful to our security and defense.”¹³⁰ The DOD is seeking a foothold in the ROK BMD system and hopes to integrate THAAD into the KAMD. While this foreign military sale would be a welcome sight for the U.S. DOD, it is receiving reprisal from China. China is already suspect of the United States and Japan combined missile defense efforts and is seeking to deter ROK from forming a similar partnership with the United States.¹³¹ The AN/TPY-2 has become political and the future addition of radars will have tactical and strategic implications.

The Air Force remains vested in the BMD through their commitment to satellite programs and early warning radars. The Space Tracking and Surveillance System (STSS) provides overhead infrared tracking and consists of two satellites launched in 2009.¹³² The satellites were intended to be the predecessors to the Precision Tracking Space System (PTSS) that has since been cancelled. The Air Force currently operates the Cobra Dane radar in Alaska, but only has funding for operations through 2015. The MDA and U.S. Air Force have not yet agreed upon a replacement plan for Cobra Dane. Cobra Dane remains operational with only simulated tracking serving as proof of capability. Due to the field of view and budget constraints, Cobra Dane has not tracked a test target since 2005.¹³³ Meanwhile, the MDA and U.S. Air Force continue to share cost in executing the upgrades associated with UEWRs in Clear and Cape Cod.¹³⁴

¹³⁰ “Defense Chief says THAAD Will Assist in Security of South Korea,” *Yonhap News Agency*, October 7, 2014, <http://english.yonhapnews.co.kr/news/2014/10/07/0200000000AEN20141007008200315.html>.

¹³¹ Samuel Songhoon Lee, “Why Wouldn’t South Korea Want U.S. Missile Defenses?” *CBS News*, June 3, 2014, <http://www.cbsnews.com/news/u-s-proposes-advanced-missile-defense-system-in-south-korea/>.

¹³² “Space Tracking and Surveillance System,” Missile Defense Agency, July 2014, <http://www.mda.mil/global/documents/pdf/stss.pdf>.

¹³³ Cristina Chaplain, *Missile Defense: Opportunity to Refocus on Strengthening Acquisition Management* (GAO-13-432) (Washington, DC: U.S. Government Accountability Office, 2013), 81, <http://www.gao.gov/assets/660/654233.pdf>.

¹³⁴ *Ibid.*, 79.

C. COMPLETED AND UPCOMING BMDS TESTING

The BMDS requires continuous testing and modification to ensure proper functionality. Testing of the BMDS can include simulated target tracking, live-fire intercepts, verification of data path reliability, coalition capability testing, or a combination of multiple systems to achieve successful tracking or intercept. Given the wide range of asset capability, budget constraints, and variation amongst threats, the MDA seeks maximum efficiency when developing the Integrated Master Test Plan (IMTP).¹³⁵ The IMTP is a classified document but a review of recent tests can serve as a gauge of current BMDS reliability, highlight failures or successes, and suggest future testing requirements. During an April 2, 2014 meeting of the Senate committee on Armed Services and Strategic Forces Subcommittee, J. Michael Gilmore, the Director of the Operational Test and Evaluation Office of the Secretary of Defense, discussed the recent testing events with mixed results. The director's testimony separated the individual progress of Aegis BMD, THAAD, GBI, C2BMC, and Aegis Ashore while forecasting upcoming tests.¹³⁶

Aegis BMD has been amongst the most reliable of BMD platforms and has recorded 28 successful intercepts during 34 total live-fire test intercepts as of July 2014.¹³⁷ To provide balance, Director Gilmore makes reference to the last failed SM-3 test during Flight Test Integrated 01(FTI-01) in October 2012. FTI-01, part of the planned tests within the IMTP, was the first test to include THAAD, Aegis, PAC-3 and C2BMC simultaneously.¹³⁸ FTI-01 involved five intercepts all of which were successful

¹³⁵ "Fiscal Year 2015 Budget Overview," Missile Defense Agency, February 20, 2014, http://www.mda.mil/global/documents/pdf/Budget_Overview.pdf.

¹³⁶ *Hearing before the Senate Armed Services Committee and Strategic Forces Subcommittee, United States Senate*, 113th Cong. (2014) (statement of J. Michael Gilmore, Director, Operational Test and Evaluation, Washington, DC).

¹³⁷ "Aegis Ballistic Missile Defense Testing," Missile Defense Agency, July 23, 2014, http://www.mda.mil/global/documents/pdf/aegis_tests.pdf.

¹³⁸ "FTI-01 Mission Data Sheet," Missile Defense Agency, October 15, 2012, http://www.mda.mil/global/documents/pdf/fti_01_factsheet.pdf.

with the exception of an SM-3 intercept of a short-range ballistic missile.¹³⁹ Since the failure there have been five successful intercepts with the most recent test coming on October 3, 2013 in FTM-22.¹⁴⁰ The achievements of the SM-3 program has been downplayed due to the anomalies encountered with the third stage rocket motor in SM-3 IA and IB.¹⁴¹ Future testing of Aegis BMD has been delayed due to sequestration and target availability while procurement of standard missiles continues uninterrupted.

THAAD has a perfect record of eleven intercepts in eleven attempts since testing began in 2006.¹⁴² THAAD's most recent success came as a part of FTI-01. While THAAD conducted a successful engagement of a medium range threat, personnel on station executed it. The next step for THAAD success is the execution of target kills via a remote control through the C2BMC. While this technology is in development, it cannot be tested because of funding shortfalls.¹⁴³ This test record has paved the way for procurement of additional batteries including the previous mentioned foreign military sale to the United Arab Emirates and Qatar.¹⁴⁴

GBI has had a less than positive track record, but it remains the only system declared as capable against an ICBM threat. Since 1999, GBI has performed 17 flight tests with 9 confirmed intercepts.¹⁴⁵ The successful intercept on June 22, 2014 was the first intercept by a GBI since 2008. The GBI program has experienced significant failures due to issues in manufacturing the Kill Vehicle which has now been through two

¹³⁹ "Ballistic Missile Defense System Engages Five Targets Simultaneously During Largest Missile Defense Test in History," Missile Defense Agency, October 25, 2012, <http://www.mda.mil/news/12news0011.html>.

¹⁴⁰ "Aegis Ballistic Missile Defense Testing," Missile Defense Agency, July 23, 2014, http://www.mda.mil/global/documents/pdf/aegis_tests.pdf.

¹⁴¹ *Hearing before the Senate Armed Services Committee and Strategic Forces Subcommittee, United States Senate*, 113th Cong. (2014) (statement of J. Michael Gilmore, Director, Operational Test and Evaluation, Washington, DC).

¹⁴² "Ballistic Missile Defense Intercept Flight Test Record," Missile Defense Agency, June 22, 2014, <http://www.mda.mil/global/documents/pdf/testrecord.pdf>.

¹⁴³ Ibid.

¹⁴⁴ Reuben Johnson, "Lockheed Martin Scores with Air and Missile Defense in the Middle East," *Aviation International News*, November 17, 2013, <http://www.ainonline.com/aviation-news/dubai-air-show/2013-11-17/lockheed-martin-scores-air-and-missile-defense-middle-east>.

¹⁴⁵ "Ballistic Missile Defense Intercept Flight Test Record," Missile Defense Agency, June 22, 2014, <http://www.mda.mil/global/documents/pdf/testrecord.pdf>.

iterations: Capability Enhancement 1 (CE-1) and Capability Enhancement II (CE-II). FTG-06b utilized an Aegis BMD cue to a GBI equipped with CE-II Enhanced Kill Vehicle.¹⁴⁶ Further testing is required to determine accurate asset capability and reliability. Upcoming GBI testing includes attempting an intercept an ICBM target traveling over 5,500 kilometers prior to engagement. This shift in testing is an attempt to stress the GMD system and build confidence in the event of real world employment. These tests are not cheap, with an estimated price of \$70M per GBI,¹⁴⁷ not including the \$18M for each retrofit to the ten existing CE-II equipped GBIs.¹⁴⁸ With the proposed expansion of the GBI inventory in 2013, from 30 to 44 interceptors at an estimated cost of \$1B through 2017, testing will be accompanied by the identification of system flaws and further improvement to the kill vehicle.¹⁴⁹ These modifications will take place as a third GBI site is proposed for the east coast.¹⁵⁰

D. FUTURE TECHNOLOGIES

The validation process for developing technologies is extensive due to the responsibility placed on platforms to defend the homeland. The MDA is constantly pursuing newer systems. As other nations pursue advanced missile technology, the MDA is charged with remaining ahead of the threat in terms of detection, tracking and engagement. While some programs have lost funding due to sequestration and reallocation of assets, other systems have survived and are progressing toward maturation.

¹⁴⁶ “Target Missile Intercepted Over the Pacific Ocean During Missile Defense Exercise,” U.S. Department of Defense, June 22, 2014, <http://www.defense.gov/Releases/Release.aspx?ReleaseID=16788>.

¹⁴⁷ “Science and Technology Issues of Early Intercept Ballistic Missile Defense Feasibility,” U.S. Defense Science Board, 29, September 2011, <http://www.acq.osd.mil/dsb/reports/ADA552472.pdf>.

¹⁴⁸ Cristina Chaplain, *Missile Defense: Opportunity to Refocus on Strengthening Acquisition Management* (GAO-13-432) (Washington, DC: U.S. Government Accountability Office, 2013), 90, <http://www.gao.gov/assets/660/654233.pdf>.

¹⁴⁹ James Miller (Undersecretary for Policy Department of Defense), in DOD news briefing on missile defense, March 15, 2013, <http://www.defense.gov/transcripts/transcript.aspx?transcriptid=5205>.

¹⁵⁰ *Hearing before the Senate Appropriations Committee and Defense Subcommittee, United States Senate*, 113th Cong. 9 (2014) (statement of Vice Admiral J. D. Syring, Director, Missile Defense Agency, Washington, DC).

As a stopgap measure for sensor coverage in the Pacific, the director of the MDA has requested approximately \$80M for the development of the Long Range Discrimination Radar (LRDR).¹⁵¹ While a location has not been disclosed, it will provide constant coverage across the Pacific and allow for SBX to enter a reduced operational status. MDA has identified a sensor gap and is working to correct the issue and ease the stress on forward sensors.

The U.S. Navy experienced a setback when the SM-3 Block IIB funds were reallocated to the GMD CE-II program. During a DOD briefing in 2013, Secretary of Defense Hagel announced that the SM-3 IIB program was no longer part of the EPAA.¹⁵² The funds are now being used to improve the CE-2 Kill Vehicle on the GBIs in order to provide a more immediate defense of the United States. The logic is that the SM-3 IIB program would not have been fielded until 2022 at the earliest and the threat from Iran and North Korea is advancing more rapidly, which then requires a deterrent and engagement capability. While a capable GMD force is crucial to a sense of security, the SM-3 IIB program could allow for an early intercept capability that does not currently exist. The SM-3 IIB would allow Aegis ships to conduct intercepts against ICBMs in the post-boost phase prior to a GBI engagement. Early engagement allows for multiple engagements, the efficient use of limited GBIs, and further discrimination against possible ICBM countermeasures.¹⁵³ While the SM-3 IIB program has been discarded at present, the technology could reappear if a new threat emerges.

The Air and Missile Defense Radar (AMDR) has survived budget cuts and is posed to be the radar system deployed on the DDG-51 Flight III. The AMDR is the follow on to SPY-1, which was the air, surface and BMD radar on the CG and DDG Flight I, II, and IIA ship classes. Raytheon was awarded the contract in 2013 and the AMDR is on track for installation in the shipyard in 2019. The AMDR will possess an S-

¹⁵¹ "Fiscal Year 2015 Budget Overview," Missile Defense Agency, February 20, 2014, http://www.mda.mil/global/documents/pdf/Budget_Overview.pdf.

¹⁵² Chuck Hagel (Secretary of Defense), in DOD news briefing on missile defense, March 15, 2013, <http://www.defense.gov/transcripts/transcript.aspx?transcriptid=5205>.

¹⁵³ "Science and Technology Issues of Early Intercept Ballistic Missile Defense Feasibility," U.S. Defense Science Board, 29, September 2011, <http://www.acq.osd.mil/dsb/reports/ADA552472.pdf>.

band radar for air and missile defense responsibilities as well as an X-band radar for surface and horizon search. The current procurement estimate is to maintain 22 radars systems for a 40-year life cycle.¹⁵⁴

While the AMDR has survived, the Airborne Laser Test Bed (ALTB) was discontinued in 2012. The ALTB used directed energy to engage ballistic missiles in the boost phase. In 2010 the ALTB successfully intercepted a short-range missile. This success came too late for the ALTB program, which began in 1996 and then was transitioned to research and development in 2009 by then Secretary of Defense, Robert Gates.¹⁵⁵ The ALTB is another example of a technology aimed at attacking the ballistic missile in the early stages of flight which is advantageous tactically but considerably more difficult to execute. The modified Boeing 747 transitioned to the mothball fleet in February 2012.¹⁵⁶

The Precision Tracking Space System (PTSS) was designed to give tracking and discrimination data through all phases of ballistic missile flight by sharing data through a constellation of satellites.¹⁵⁷ The PTSS program began in 2009 but was subsequently discontinued in 2013 due to budget drawbacks.

The cancellation of BMD programs does not mean the end of technological research. The space program of the MDA is constantly pursuing new means of persistent satellite surveillance and tracking. MDA has even attempted to design a surveillance system capable of being placed on unmanned aircraft as part of the Airborne Infrared System (ABIR).¹⁵⁸

¹⁵⁴ “Air and Missile Defense Radar Selected Acquisition Report,” PEO IWS, April 16, 2014, http://www.dod.mil/pubs/foi/logistics_material_readiness/acq_bud_fin/SARs/14-F-0402_DOC_06_AMDR_December2013SAR.PDF.

¹⁵⁵ Robert M. Gates (Secretary of Defense), “Defense Budget Recommendation,” April 6, 2009, <http://www.defense.gov/speeches/speech.aspx?speechid=1341>.

¹⁵⁶ Tom Z. Collina and Kelsey Davenport, “Airborne Laser Mothballed,” Arms Control Association, February 14, 2012, http://www.armscontrol.org/act/2012_03/Airborne_Laser_Mothballed.

¹⁵⁷ “Precision Tracking Space System,” Missile Defense Agency, December 2013, <http://www.mda.mil/global/documents/pdf/ptss.pdf>.

¹⁵⁸ “U.S. Missile Defense Agency Testing Reaper as Missile Hunter,” Unmanned Aircraft Systems Vision, August 24, 2011, <http://www.uasvision.com/2011/08/24/us-missile-defense-agency-testing-reaper-as-missile-hunter/>.

E. SUMMARY

An assessment of the costs and capabilities of BMD platforms has revealed limitations. Testing and budgetary needs have led to a sensor gap in the Pacific; the LRDR may or may not be the solution. As funds slow, the testing cycle for SM-3s will slow and the delivery of SM-3 Block IB and IIA may be impacted. The DOD will have to decide on whether to test or deliver missiles to the Aegis Ashore sites. The funding constraints have limited the development of future technology and hampered validation of current platforms. Given these restrictions, the best course of action may be to employ assets as a deterrent and make adjustments as testing continues.

III. POLITICAL AND DIPLOMATIC CONTRIBUTING FACTORS

The previous chapter discussed the military factors that will either ease or stall the creation of a Pacific Phased Adaptive Approach (PPAA). This chapter will seek to understand the domestic and international politics within the United States, Japan and the Republic of Korea (ROK) with a focus toward forming a multilateral defense-based alliance similar to the North Atlantic Treaty Organization (NATO). Within the United States, the Department of Defense (DOD), Department of State (DOS), and the White House formulate policy and global strategy. These policies require the financial support and treaty consent of the legislative branch.

The prime impetus for executing the diplomatic portion of the PPAA will come from within the United States and might require considerable cooperation and agreement between Japan and the Republic of Korea (ROK). At the minimum, the PPAA will require enhanced bilateral cooperation along existing U.S.-Japan and U.S.-ROK alliances. In the best-case scenario, an information sharing agreement between Japan and the ROK would allow for increased burden sharing, pooling of resources, and ultimately reduced financial strain on the United States. Considering the distrust between the two East Asian nations,¹⁵⁹ a cooperative alliance would require a substantive contribution from the United States as a third party broker. By understanding the current issues dividing or motivating the concerned parties, the PPAA can be formulated to better utilize diplomatic leverage.

A. THE PIVOT TO THE PACIFIC

On November 17, 2011, President Obama declared, “in the Asia Pacific in the 21st century, the United States of America is all in.”¹⁶⁰ During his address to the Australian parliament President Obama outlined his strategic shift away from two wars in Iraq and

¹⁵⁹ “62% of South Koreans Regard Japan as a Military Threat: Think Tank Poll,” *Japan Times*, October 30, 2013, <http://www.japantimes.co.jp/news/2013/10/30/national/62-of-south-koreans-regard-japan-as-a-military-threat-think-tank-poll/#.VErTkL6RPGg>.

¹⁶⁰ Barack Obama, “Remarks by President Obama to the Australian Parliament,” White House Office of the Press Secretary, November 17, 2011, <http://www.whitehouse.gov/the-press-office/2011/11/17/remarks-president-obama-australian-parliament>.

Afghanistan and toward the Pacific region. He mentions the United States as a “Pacific nation” multiple times throughout his speech. The President made several remarks about the austere financial circumstances surrounding the United States and specifically the military, but stated that corrective measures to reduce spending would not be at the expense of security in the Asian theater.¹⁶¹ This speech marked the rebalancing of focus and forces toward the Pacific, which has since been named “the Pivot to Asia” or “Rebalancing to the Pacific”¹⁶² or “The Pacific Pivot.”¹⁶³

Since the speech by the Commander-in-Chief in 2011, the DOD has released several documents in support of this shift in strategy. Normally, a strategic shift of this magnitude would be outlined in the National Security Strategy (NSS). While the NSS is required to be submitted by the President to the Congress each year, this has not happened as planned. Since 2002, there have only been three NSS submissions with the most recent iteration being the National Security Strategy 2010.¹⁶⁴ The NSS traditionally sets the stage for the National Military Strategy (NMS), which also has not been published since 2010. The NMS is designed to state the ways and means by which the military will achieve the objectives listed in NSS.¹⁶⁵

Instead of releasing a new NSS or NMS, the executive branch released the 2012 Defense Strategic Guidance (DSG). The 2012 DSG came only two months after President Obama’s speech in Australia. Leon Panetta, then Secretary of Defense, released the 2012 DSG as an update to the DOD’s strategic vision while reiterating the President’s priorities for the military. The guidance acknowledged the shift in focus toward the Asia Pacific and mentioned a recalibration of forces to meet new goals. As the force

¹⁶¹ Barack Obama, “Remarks by President Obama to the Australian Parliament,” White House Office of the Press Secretary, November 17, 2011, <http://www.whitehouse.gov/the-press-office/2011/11/17/remarks-president-obama-australian-parliament>.

¹⁶² Benny Avni, “Obama’s Incredible Shrinking Pacific Pivot,” *New York Post*, June 1, 2014, <http://nypost.com/2014/06/01/obamas-incredible-shrinking-pacific-pivot/>.

¹⁶³ “The Pacific Pivot,” *Stars and Stripes*, October 14, 2014, <http://www.stripes.com/news/pacific/the-pacific-pivot>.

¹⁶⁴ Barack Obama, “National Security Strategy 2010,” May 27, 2010, <http://nssarchive.us>.

¹⁶⁵ Robert M. Gates (Secretary of Defense), “The National Military Strategy of the United States of America 2011: Redefining America’s Military Leadership,” February 8, 2011, <http://www.army.mil/info/references/docs/NMS%20FEB%202011.pdf>.

recalibrates to meet new demands in the Pacific, Secretary Panetta mentions budgetary restrictions as an obstacle to achieving success. In the closing remarks, there was a focus on efficiency while ensuring success because “we cannot afford to fail.”¹⁶⁶ This document set the stage for policy shifts throughout the DOD.

In a follow-up to the 2012 DSG, the 2014 Quadrennial Defense Review discussed the current state of the U.S. military and factors shaping the force at home and abroad. Domestically, the focus of the QDR was resolving fiscal waste to make the military more efficient as a whole. Internationally, the opening section of the 2014 QDR lists Iran and North Korea as dangerous regimes that threaten the United States. The 2014 QDR builds off the 2012 DSG by reinforcing the United States as a “Pacific power” and referring to North Korea as a “growing, direct threat to the United States.”¹⁶⁷

In response to unrest in the Asia Pacific, the 2014 QDR makes reference to a possible “multilateral security architecture” that is composed of regional actors and would be responsible for balancing against aggressors to regional stability.¹⁶⁸ This is a reference to a possible collection of nations similar to NATO that could manage security concerns and further economic development in the region. While there are no multilateral defense organizations within the Asia Pacific region, U.S. involvement is aimed at strengthening regional partnerships. Specifically, the review highlights the Association of Southeast Asian Nations (ASEAN) Defense Ministers Meeting (ADMM) as a tool for enhancing security cooperation in the region.¹⁶⁹ The ADMM will be discussed in the context of diplomacy later in this chapter.

The 2014 QDR likens Iran to North Korea as both unreliable and unpredictable states, both threats requiring BMD efforts. The same report reinforces that U.S. BMD efforts are not directed toward Russia and China. The previous sentiment is repeated throughout DOD and executive branch material; “today, only Russia and China have the

¹⁶⁶ Leon Panetta (Secretary of Defense), “2012 Defense Strategic Guidance,” January 2012, http://www.defense.gov/news/defense_strategic_guidance.pdf.

¹⁶⁷ Chuck Hagel, *Quadrennial Defense Review* (Washington, DC: The Pentagon, 2014), 4, http://www.defense.gov/pubs/2014_Quadrennial_Defense_Review.pdf.

¹⁶⁸ Ibid.

¹⁶⁹ Ibid., 17.

capability to conduct a large-scale ballistic missile attack on the territory of the United States, but this is very unlikely and not the focus of U.S. BMD.”¹⁷⁰ The only defense against a Chinese or Russian missile attack is deterrence in the form of U.S. nuclear forces. China and Russia have continued to voice concerns about the expansion of missile defenses regardless of stated U.S. intentions. In an effort to promote transparency and ease tensions, the U.S. submitted regional policy concerns and capabilities of deployed units to the 2014 ASEAN Regional Forum Annual Security Outlook.¹⁷¹

In the closing section of the 2014 QDR, the Chairman of the Joint Chiefs of Staff, General Martin Dempsey, listed 12 priorities for the distribution of forces and BMD met multiple objectives including “defense of the homeland, provide a global stabilizing presence, counter weapons of mass destruction, and deny an adversary’s objectives.”¹⁷² According to the objectives and threats listed in the 2014 QDR, BMD is a necessary and developing warfare area.

Flowing from the NSS, NMS, and QDR, the DOD then promulgates strategy to combatant commanders through the Guidance for Employment of the Force (GEF), which is classified.¹⁷³ In all publicly released documents since 2011, the DOD and executive branch have stated a clear goal of shifting forces toward the Pacific while exercising fiscal responsibility. With strategy in place from the DOD and executive branch, policy implementation and execution require simultaneous cooperation between the military, congress, and the Department of State.

¹⁷⁰ “Ballistic Missile Defense Review (BMDR) Report February 2010,” U.S. Department of Defense, vi, http://www.defense.gov/pubs/2014_Quadrennial_Defense_Review.pdf.

¹⁷¹ “U.S. Engagement in the 2014 ASEAN Regional Forum,” U.S. Department of State Office of the Spokesperson, August 10, 2014, <http://www.state.gov/r/pa/prs/ps/2014/230479.htm>.

¹⁷² Chuck Hagel, *Quadrennial Defense Review* (Washington, DC: The Pentagon, 2014), 60, http://www.defense.gov/pubs/2014_Quadrennial_Defense_Review.pdf.

¹⁷³ Patrick C. Sweeny, “A Primer for: Guidance for Employment of the Force (GEF), Joint Strategic Capabilities Plan (JSCP), the Adaptive Planning and Execution (APEX) System, and Global Force Management (GFM),” The United States Naval War College, July 29, 2011, <http://www.acq.osd.mil/log/PS/ocs/cdg/GEF-JSCP-APEX-NWC%20Primer.pdf>.

B. CONGRESSIONAL CONCERNS IN THE ASIA PACIFIC

In the QDR, Secretary of Defense Chuck Hagel discusses the necessity for cooperation between the legislative branch and the military.¹⁷⁴ Secretary Hagel is referring to the strain placed upon the military to be present abroad as the leading fighting force in the globe while continuing to receive less and less funding. The Congress also has a role in international efforts both economic and diplomatic. From the economic perspective, the Trans-Pacific Partnership (TPP) is a proposed free trade agreement involving 12 nations throughout the Pacific, including the United States.¹⁷⁵ While the Obama administration is continuing the TPP negotiations, U.S. Congress will eventually be responsible for signing any agreement into legislation.¹⁷⁶ In a diplomatic sense, the U.S. House of Representatives agreed to legislation officially urging the Japanese government to “formally acknowledge, apologize, and accept historical responsibility in a clear and unequivocal manner for its Imperial Armed Forces’ coercion of young women into sexual slavery....”¹⁷⁷ The U.S. Congress, divided amongst Democrats, Republicans and a small minority of independent representatives, has a powerful role in shaping the possibility of multilateral defense cooperation.

The current rebalancing of forces in the Asia Pacific involves all branches of the military and requires approval from the U.S. Congress. The U.S. Congress is required to approve funds designated to the DOD for expenditure under the National Defense Authorization Act each fiscal year.¹⁷⁸ In the ROK, all U.S. forces are being moved from bases near the DMZ to ones further south. Also, the DOD is attempting to normalize troop deployments by allowing spouses and family members to accompany soldiers

¹⁷⁴ Chuck Hagel, *Quadrennial Defense Review* (Washington, DC: The Pentagon, 2014), v, http://www.defense.gov/pubs/2014_Quadrennial_Defense_Review.pdf.

¹⁷⁵ Naomi Woodley, “Multilateral Trade Deal Trans Pacific Partnership Inches Closer with Sydney Meeting,” Australian Broadcasting Cooperation News, October 24, 2014, <http://www.abc.net.au/news/2014-10-25/multi-lateral-trade-deal-inches-closer-with-sydney-meeting/5840762>.

¹⁷⁶ Emma Chanlett-Avery, Mark E. Manyin, Ian E. Rinehart, Rebecca M. Nelson, and Brock R. Williams, *Japan-U.S. Relations: Issues for Congress* (CRS Report No. RL33436) (Washington, DC: Congressional Research Service, 2014), 2, <http://fas.org/sfp/crs/row/RL33436.pdf>.

¹⁷⁷ HR 121, 110th Cong., 1st session (2007).

¹⁷⁸ *National Defense Authorization Act for Fiscal Year 2014*, Pub. L. 113–66, (2013).

overseas. Senators Carl Levin, Jim Webb, and John McCain voiced resentment over the concept of normalizing deployments and the possible political and public relation impact that could result.¹⁷⁹

By normalizing deployments to the ROK, soldiers and their families benefit as much as the military. Instead of a one-year rotation, accompanied soldiers will assume a three-year position, thus allowing for familiarization and retention of regional knowledge. While families benefit, costs are increased due to increase in infrastructure required to sustain military families.¹⁸⁰ The political cost is that an increased U.S. military presence could be received unfavorably in the ROK which current holds the Obama administration in high regard.¹⁸¹ In December 2009, then-Secretary of Defense Robert M. Gates signed proposed tour normalization policy into effect.¹⁸² To counter this rise in expenditures, the U.S. Congress passed the 2013 National Defense Authorization Act (NDDA) prohibiting the distribution of funds to efforts contributing to tour normalization.¹⁸³

That same NDDA legislation included further expenditures for troop relocation from near the DMZ to one of two force concentration areas in South Korea. By 2017, 19,000 U.S. soldiers will have relocated from near the Demilitarized Zone to either Osan in the west or Daegu in the southeast. The move will cost the United States over \$9B while the ROK's portion is rising over \$4B.¹⁸⁴ This movement of forces is part of a

¹⁷⁹ Carl Levin, "Floor Statement on the National Defense Authorization Act for Fiscal Year 2012," November 17, 2011, <http://www.levin.senate.gov/newsroom/speeches/speech/floor-statement-on-the-national-defense-authorization-act-for-fiscal-year-2012>.

¹⁸⁰ Donna Miles, "Korea Tour Normalization," U.S. Army, July 27, 2010, http://www.army.mil/article/42904/Korea_tour_normalization/.

¹⁸¹ Max Fisher, "Anti-American Countries Can Become Pro-American. Here's How South Korea Did It," *Washington Post*, May 7, 2013, <http://www.washingtonpost.com/blogs/worldviews/wp/2013/05/07/anti-american-countries-can-become-pro-american-heres-how-south-korea-did-it/>.

¹⁸² Donna Miles, "Korea Tour Normalization," U.S. Army, July 27, 2010, http://www.army.mil/article/42904/Korea_tour_normalization/.

¹⁸³ Mark E. Manyin, Mary Beth D. Nikitin, Emma Chanlett-Avery, William H. Cooper and Ian E. Rinehart, *U.S.-South Korea Relations* (CRS Report No. R41481) (Washington, DC: Congressional Research Service, 2014), 14, <http://fas.org/sgp/crs/row/R41481.pdf>.

¹⁸⁴ Mark E. Manyin, Mary Beth D. Nikitin, Emma Chanlett-Avery, William H. Cooper and Ian E. Rinehart, *U.S.-South Korea Relations* (CRS Report No. R41481) (Washington, DC: Congressional Research Service, 2014), 15, <http://fas.org/sgp/crs/row/R41481.pdf>.

larger transition from U.S. to ROK wartime operational control of forces that is currently undergoing debate.

Just as in the ROK, U.S. military forces are being repositioned throughout Japan. In May 1, 2006 the Security Consultative Committee produced the “United States-Japan Roadmap for Realignment Implementation” in which U.S. forces will return land and facilities to Okinawa starting in 2014 and moving through 2028 or after.¹⁸⁵ The realignment comes as the U.S. adds forces in other nations throughout the Asia Pacific and Japan increases defense spending. The realignment is meant to better the domestic political environment in Japan, maintain U.S. forces in Japan, and affirm the U.S.-Japan alliance.¹⁸⁶ Congress has remained skeptical about the financial projections of the realignment costs but is currently funding the process.¹⁸⁷

Besides funding defense initiatives, the U.S. Congress has taken steps to advance free trade agreements with Japan and Korea. On October 12, 2011 the U.S. Congress signed into law the United States-Korea Free Trade Agreement and it went into effect on March 15, 2012.¹⁸⁸ Japan and the United States do not have a free trade agreement but are currently negotiating the TPP. Members of the U.S. Congress have lodged complaints against Japan becoming a TPP member because of Japan’s unwillingness to remove tariffs on farm products.¹⁸⁹ While the U.S. Trade Representative conducts negotiations on behalf of the U.S. President under the trade promotion authority granted to the president by Congress, this expired in 2007 and is up for renewal in both houses of

¹⁸⁵ “Consolidation Plan for Facilities and Areas in Okinawa,” U.S. Department of Defense, April 2013, <http://www.defense.gov/pubs/Okinawa%20Consolidation%20Plan.pdf>.

¹⁸⁶ Cheryl Pellerin, “Hagel Details U.S.-Japan Consolidation Plan for Okinawa,” *Armed Forces Press Service*, April 5, 2013, <http://www.defense.gov/news/newsarticle.aspx?id=119701>.

¹⁸⁷ Brian Lepore, *Defense Management: More Reliable Cost Estimates and Further Planning Needed to Inform the Marine Corps Realignment Initiatives in the Pacific* (GAO-13-360) (Washington, DC: U.S. Government Accountability Office, 2013), 53, <http://www.gao.gov/assets/660/655142.pdf>.

¹⁸⁸ “U.S.-Korea Free Trade Agreement,” Office of the United States Trade Representative, accessed October 20, 2014, <http://www.ustr.gov/trade-agreements/free-trade-agreements/korus-fta>.

¹⁸⁹ Richard Katz, “Trans-Pacific Partnership: Lessons from Negotiations,” National Bureau of Asian Research, September 4, 2014, <http://www.nbr.org/publications/issue.aspx?id=304>.

congress.¹⁹⁰ This legislature could become earmarked with requirements for Japanese concessions as part of the TPP.

Lastly, the U.S. Congress can have a positive or negative impact on the diplomatic efforts necessary to bring about cooperative agreements. In August 2014, a congressional race in Virginia sparked a debate about the naming convention of the Sea of Japan, also known as the East Sea in the ROK. In order to garner votes in a district with a number of South Korean immigrants, a candidate endorsed support for bill that request state schools teach both naming conventions for the body of water between Japan and the Korean peninsula. Similar bills have since been introduced in other states while receiving negative attention from the Japanese community.¹⁹¹ This minute example of congressional involvement can manifest itself at higher diplomatic levels.

Other congressional representatives have taken interest in the U.S.-Japan-ROK alliance as key to success in the Asia Pacific. U.S. House Representative Diana DeGette was a member of a 2014 congressional delegation to Japan that aimed at forming relationships with members of the Diet (Japanese congress). Representative DeGette voiced the opinion that “as members of Congress, we are very concerned about strengthening the trilateral relationship.”¹⁹² DeGette’s opinion was echoed by other members of the delegation while in the presence of U.S. ambassador to Japan, Caroline Kennedy, and elected officials of the Diet. Similar efforts to foster the development of diplomatic relations will have to be recreated to ease the process of achieving trilateral cooperation.

¹⁹⁰ Mark E. Manyin, Mary Beth D. Nikitin, Emma Chanlett-Avery, William H. Cooper and Ian E. Rinehart, *U.S.-South Korea Relations* (CRS Report No. R41481) (Washington, DC: Congressional Research Service, 2014), 5, <http://fas.org/sgp/crs/row/R41481.pdf>.

¹⁹¹ Rachel Weiner, “Geographic Naming Dispute Between Japan, South Korea Could Spill Into Congress,” *Washington Post*, August 16, 2014, http://www.washingtonpost.com/local/virginia-politics/geographic-naming-dispute-between-japan-south-korea-could-spill-into-congress/2014/08/16/96d8ce46-24d0-11e4-86ca-6f03cbd15c1a_story.html.

¹⁹² “U.S. Lawmakers Say Trilateral Alliance with Japan, South Korea Key,” *Kyodo News International*, February 18, 2014, <http://www.globalpost.com/dispatch/news/kyodo-news-international/140218/us-lawmakers-say-trilateral-alliance-japan-s-korea-key>.

C. DIPLOMATIC EFFORTS IN THE ASIA PACIFIC

Recent events in the Asia Pacific have created a dynamic environment that could end either favorably or unfavorably for the United States. As a single example, the U.S.-ROK relationship is under a period of transformation stemming from the transition of operational control of ROK military forces from U.S. command to ROK command. In Japan, under the Abe administration, the concept of self-defense in the Japanese constitution has been reinterpreted to include the defense of U.S. forces. These issues, amongst others, will define diplomatic efforts in the near future.

Since 1953, the United States has maintained operational control of the ROK military forces. After an agreement reached in 2007, the United States had planned to return operational control of South Korean forces, but the DPRK took multiple aggressive steps in 2012 and 2013 that have disrupted this timeline. After an April 2014 meeting between both heads of state, the transfer has been delayed until 2015 at the earliest and more likely not until sometime during the 2020s.¹⁹³ The delay is partly due to the ROK's implementation of air defense, missile defense, and early warning systems.¹⁹⁴ As of April 2014, President Park stated, "Korea and the United States have decided that the basic direction should be to strengthen the KORUS, combine the defensive posture."¹⁹⁵

While U.S.-Korea relations are undergoing change, the U.S.-Japan relationship also remains fluid. During the "2+2 Consultative Meetings in 2013," Secretary of State John Kerry and Secretary of Defense Chuck Hagel met with the Prime Minister and Defense Minister of Japan. The talks concerned the revision of 1997 Guidelines for U.S.-Japan Defense Cooperation.¹⁹⁶ The ultimate goal of the meeting was to increase relations and move closer to a seamless working relationship between the United States and Japan.

¹⁹³ Ankit Panda, "U.S. South Korea Discuss Operational Control Transfer," *Diplomat*, June 17, 2014, <http://thediplomat.com/2014/06/us-south-korea-discuss-operational-control-opcon-transfer/>.

¹⁹⁴ Ibid.

¹⁹⁵ Park Geun-hye, "Press Conference with President Obama and President Park of the Republic of Korea," The White House Office of the Press Secretary, April 25, 2014, <http://www.whitehouse.gov/the-press-office/2014/04/25/press-conference-president-obama-and-president-park-republic-korea>.

¹⁹⁶ John Kerry, "Remarks at the Meeting of the U.S.-Japan Security Consultative Meeting (2+2)," U.S. Department of State, October 3, 2013, <http://www.state.gov/secretary/remarks/2013/10/215042.htm>.

As a byproduct of the bilateral agreement, the United States is hoping that the Japanese Self-Defense Forces (JSDF) will be more welcoming to defense cooperation with other regional partners. An interim report covering the results of the meeting states that “the two governments will promote bilateral and multilateral security and defense cooperation with regional allies and partners.”¹⁹⁷ A multilateral defense agreement of any substantive power would be between the United States, Japan and the Republic of Korea. The more likely defense partnership would be a coalition of smaller Asian nation states that would slowly acquire the support of larger nations, similar to the Association of Southeast Asian Nations (ASEAN).

In a move to gain diplomatic leverage in the Asian theater, the U.S. has taken an interest in ASEAN. ASEAN is committed to economic growth throughout the Asia Pacific region while working toward the goals of peace, stability, and integration.¹⁹⁸ ASEAN can be compared to a regional version of the United Nations or European Union. The current ASEAN vision is primarily economic but recently took a step toward defense priorities with the creation of the ASEAN Defense Ministers Meeting (ADMM).

The first ADMM took place in 2006 with all ASEAN member states represented. The ADMM then expanded to include members whom are not ASEAN members under the title of ADMM Plus. The ADMM Plus has since grown to include eight “dialogue partners,” namely Russia, Japan, South Korea, China, Australia, New Zealand, India and the United States.¹⁹⁹ These meetings have been primarily focused on non-controversial topics that allow for healthy relationship building; whereas on difficult defense issues “tangible progress has been scant.”²⁰⁰ Militarily or diplomatically, an Asian version of

¹⁹⁷ “The Interim Report on the Revision of the Guidelines for U.S.-Japan Defense Relations,” U.S. Department of Defense, accessed October 18, 2014, http://www.defense.gov/pubs/20141003_INTERIM_REPORT.pdf.

¹⁹⁸ “1997 ASEAN Vision 2020,” ASEAN, December 15, 1997, <http://www.asean.org/news/item/asean-vision-2020>.

¹⁹⁹ “About the ASEAN Defense Ministers’ Meeting (ADMM Plus),” ASEAN, February 27, 2013, <https://admm.asean.org/index.php/about-admm/about-admm-plus/2013-01-22-11-01-22.html>.

²⁰⁰ Anit Mukherjee, “ADMM-Plus: Talk Shop or Key to Asia-Pacific Security?” *Diplomat*, August 22, 2013, <http://thediplomat.com/2013/08/admm-plus-talk-shop-or-key-to-asia-pacific-security/>.

NATO would be able to better balance against Russia, China, or North Korean aggression. The current U.S. posture toward China is built on “sustained and substantive dialogue.”²⁰¹ This posture is a work in progress, but would benefit from the support of a defense-oriented multilateral organization.

For now, the United States will utilize the ASEAN Regional Forum (ARF) to press diplomatic initiatives. On August 10, 2014, Secretary Kerry led the U.S. delegation to the 21st meeting of the ARF. His goals were to support the initiatives of preventative diplomacy, maritime security, disaster relief, counterterrorism, and nonproliferation.²⁰² Positive diplomatic interaction such as the ARF assists the United States in building enduring relations. These discussions set the basis from which to engage in more serious debate; such as ballistic missile defense in regards to a DPRK threat.

D. JAPANESE POLITICAL CONCERNS

Japan is currently experiencing a period of stability in domestic politics. The Liberal Democratic Party (LDP) elected Prime Minister Shinzo Abe in December 2012. This is favorable and problematic for the United States, but positive on the whole. The previous decade had been marked by political turmoil and general unrest regarding the U.S.-Japan relationship.²⁰³ Prime Minister Abe currently supports U.S. military involvement in Japan and expansion of trade agreements, but holds nationalistic views that are detrimental to relationships with regional partners, including the ROK.²⁰⁴

Japan joined the 12 nation negotiations for the TPP in July 2013.²⁰⁵ Under Prime Minister Abe, Japan has sought to revitalize its economy to include free trade

²⁰¹ Chuck Hagel, *Quadrennial Defense Review* (Washington, DC: The Pentagon, 2014), 17, http://www.defense.gov/pubs/2014_Quadrennial_Defense_Review.pdf.

²⁰² “U.S. Engagement in the 2014 ASEAN Regional Forum,” U.S. Department of State, August 10, 2014, <http://www.state.gov/r/pa/prs/ps/2014/230479.htm>.

²⁰³ Emma Chanlett-Avery, Mark E. Manyin, Ian E. Rinehart, Rebecca M. Nelson, and Brock R. Williams, *Japan-U.S. Relations: Issues for Congress* (CRS Report no. RL33436) (Congressional Research Service, 2014), 1, <http://fas.org/sgp/crs/row/RL33436.pdf>.

²⁰⁴ Ibid.

²⁰⁵ “Statement on the 18th Round of Trans-Pacific Partnership Negotiations,” Office of the United States Trade Representative, July 25, 2013, <http://www.ustr.gov/about-us/press-office/press-releases/2013/july/statement-18th-round-tp>.

agreements. Even though Japan appears to be more progressive under the current administration, it has effectively stalled the TPP talks because of an inability to sign off on concessions regarding food staples such as beef and rice.²⁰⁶ The United States made an effort to expedite negotiations including a meeting between President Obama and Prime Minister Abe in April 2014 to discuss bilateral issues including the TPP. Unfortunately it appears that this meeting did little to progress the economic agreement. President Obama is hopeful that the TPP can move forward by the end of 2014, but other member nations are stalling until Japan and the United States can reach agreement on agricultural products. The most recent high-level talks took place by phone on October 14, 2014 but were also unsuccessful.²⁰⁷ Japan is simultaneously engaged in an ASEAN based FTA. The Regional Comprehensive Economic Partnership (RCEP) is smaller in scale, includes China while excluding the United States, and is thus more agreeable to Japanese tariff demands.²⁰⁸ If Japan is able to conclude negotiations in the RCEP there may be less ambition to complete the complex TPP agreement.

To further economic progress, Japan has been active in the diplomatic arena. Prime Minister Abe has traveled throughout Asia, the Middle East, Africa and Europe to enhance diplomatic ties and further economic expansion.²⁰⁹ While Abe is pushing to expand Japan's global influence, regional politics are the primary and immediate concern. Prime Minister Abe published a document depicting his goals for foreign policy in the Asia Pacific. In "Asia's Democratic Security Diamond," Abe describes India, Australia, Japan and the United States working to maintain political balance against Chinese aggression and securing maritime commons.²¹⁰ While the essence of this policy

²⁰⁶ "Japan, America and the Trans-Pacific Partnership: Stalemate," *Economist*, October 4, 2014, <http://www.economist.com/news/asia/21621893-trade-talks-unexpectedly-break-down-stalemate>.

²⁰⁷ Jonathan Ernst, "Obama, Japan PM discuss TPP deal, Ebola by Phone: Jiji," *Reuters*, October 14, 2014, <http://www.reuters.com/article/2014/10/15/us-japan-usa-talks-idUSKCN0I404N20141015>.

²⁰⁸ Michael Wesley, "Who Calls the Tune? Asia Has to Dance to Duelling Trade Agendas," *Conversation Australia*, October 19, 2014, <http://theconversation.com/who-calls-the-tune-asia-has-to-dance-to-duelling-trade-agendas-32813>.

²⁰⁹ Emma Chanlett-Avery, Mark E. Manyin, Ian E. Rinehart, Rebecca M. Nelson, and Brock R. Williams, *Japan-U.S. Relations: Issues for Congress* (CRS Report no. RL33436) (Congressional Research Service, 2014), 11, <http://fas.org/sgp/crs/row/RL33436.pdf>.

²¹⁰ Shinzo Abe, "Asia's Democratic Security Diamond," *Project Syndicate*, December 27, 2012, <http://www.project-syndicate.org/commentary/a-strategic-alliance-for-japan-and-india-by-shinzo-abe>.

is favorable to the United States, it intentionally discounts the contributions of the ROK. The less than favorable stance toward the ROK is not limited to this document.

Since Abe has taken office he has yet to meet with either the Chinese or South Korean Prime Ministers. He has drawn heavy criticism for his revisionist positions that downplay the atrocities committed by imperial Japan throughout the region. Specifically, PM Abe and members of his cabinet continue to visit the Yasukuni Shrine.²¹¹ The Shinto shrine is home to the spirits of soldiers that fought during World War II, including the enshrinement of several who were convicted of war crimes. The PM has stated that he is simply honoring those who fought for the nation. Critics say that he could visit the Chidorigafuchi National Cemetery to accomplish the same goal without offending the United States and regional neighbors.²¹²

A meaningful point of contention between the Abe administration and the ROK is the topic of comfort women. During the 1930s and 1940s the Japanese military enslaved Korean women as prostitutes for soldiers in Japanese controlled territories. In 1993, the Japanese government issued an official apology for the mistreatment of all women affected by Japanese mistreatment; including Koreans. This press release, by then Chief Cabinet Secretary Kono, has since been called the Kono statement.²¹³ PM Abe has taken steps to enflame relations with the ROK by making mention of the validity of the statement or even possibly reversing the statement.²¹⁴ At the urging of the United States,

²¹¹ Linda Seig, "Japan Sends Offering to War Dead Shrine, Angering China," *Reuters*, October 17, 2014, <http://www.reuters.com/article/2014/10/17/us-abe-yasukuni-idUSKCN0I52VF20141017>.

²¹² "Kerry, Hagel Visit Chidorigafuchi to Diminish Yasukuni," *Japan Times*, October 3, 2013, <http://www.japantimes.co.jp/news/2013/10/03/national/politics-diplomacy/kerry-hagel-visit-chidorigafuchi-to-diminish-yasukuni/#.VEFNFL6RPGg>.

²¹³ Yohei Kono, "Statement by the Chief Cabinet Secretary Yohei Kono on the Result of the Study on the Issue of 'Comfort Women,'" Ministry of Foreign Affairs of Japan, August 4, 1993, <http://www.mofa.go.jp/policy/women/fund/state9308.html>.

²¹⁴ "Looking for Loopholes," *Economist*, June 28, 2014, <http://www.economist.com/news/asia/21605935-excuse-inexcusable-japan-again-resorts-obfuscation-looking-loopholes>.

PM Abe has stated that he would abide by the 1993 Kono statement.²¹⁵ PM Abe's reluctance is not limited to the issue of comfort women.

The ROK has continued to make mention of Japan's inability to correctly understand the history of imperial Japan. The ROK is quick to note that textbooks in Japanese schools still have revisionist teachings of treatment of foreigners during Japanese expansion that glorify grotesque acts.²¹⁶ Meanwhile there are small islands in the Sea of Japan (called the East Sea in the ROK) that are disputed between the two nations, referred to as the Liancourt Rocks by the United States.²¹⁷ These small points of contention have been roadblocks to making substantive progress on larger issues of importance to the United States.²¹⁸

Lastly, Abe has used the Six Party Talks (SPT) to advance domestic concerns about Japanese civilians abducted by North Korea. The current administration is in bilateral negotiations with the DPRK concerning the return of abducted Japanese persons in return for lessening of economic sanctions.²¹⁹ This move by Abe is counter to the united front presented in the SPT in hopes of deterring the DPRK from advancing missile and nuclear technology. Abe campaigned under the promise of doing more to ensure the safe return of abducted people and his unilateral actions could increase his popularity domestically, but hinder foreign policy issues.

²¹⁵ "Kono Statement Won't Be Replaced, Suga Says," *Japan Times*, August 27, 2014, <http://www.japantimes.co.jp/news/2014/08/27/national/kono-statement-wont-replaced-new-document-suga-says/#.VEFP5r6RPGg>.

²¹⁶ "Politicians and Textbooks," *New York Times*, January 13, 2014, <http://www.nytimes.com/2014/01/14/opinion/politicians-and-textbooks.html>.

²¹⁷ Kwanwoo Jun, "South Korea Denounces Japan's Renewed Claim on Disputed Liancourt Rocks," *Wall Street Journal*, April 4, 2014, <http://online.wsj.com/news/articles/SB10001424052702303532704579480660779784426>.

²¹⁸ Emma Chanlett-Avery, Mark E. Manyin, Ian E. Rinehart, Rebecca M. Nelson, and Brock R. Williams, *Japan-U.S. Relations: Issues for Congress* (CRS Report no. RL33436) (Congressional Research Service, 2014), 9, <http://fas.org/sgp/crs/row/RL33436.pdf>.

²¹⁹ Alexander Martin and Toko Sekiguchi, "Japan-North Korea Abduction Talks Hit Snag," *Wall Street Journal*, September 19, 2014, <http://online.wsj.com/articles/japan-north-korea-abduction-talks-hit-snag-1411106307>.

E. THE REPUBLIC OF KOREA POLITICAL CONCERNS

The Republic of Korea is home to over 25,000 U.S. soldiers and constitutes the sixth largest trading partner with the United States. The ROK is the third largest economy in the Asia Pacific and is neighbor to the most unpredictable nation on Earth, North Korea.²²⁰ Under the Park administration, the ROK's primary concern is maintaining an open dialogue with the DPRK, working toward unification on a democratic basis while preventing an aggressive, nuclear North Korea from destabilizing the region.²²¹ The ROK is contending with powerful economies and militaries in neighboring states. Meanwhile, the ROK is under pressure from China to lessen military ties with the United States and the United States is encouraging increased partnership with Japan.²²² Relations between the ROK and Japan in the last 24 months have been less than positive with little sign of improving. Given the fragility of the ROK's position in relation to multiple nations, the ROK could serve as the linchpin for establishing a defensive alliance in the Asia Pacific.

As previously mentioned the United States and the ROK are undergoing talks concerning troop realignment and the transition of operational control of ROK forces, but these are there are other issues dividing the international partners. The United States and the ROK have yet to settle on a nuclear materials agreement.²²³ The two nations initially agreed to a civil nuclear cooperation agreement known as the 123 Agreement in 1972.²²⁴ The agreement is mutually beneficial, as U.S. nuclear reactors require parts produced in the ROK and the ROK is dependent upon the United States for nuclear material. The crux

²²⁰ Mark E. Manyin, Mary Beth D. Nikitin, Emma Chanlett-Avery, William H. Cooper and Ian E. Rinehart, *U.S.-South Korea Relations* (CRS Report No. R41481) (Washington, DC: Congressional Research Service, 2014), 27, <http://fas.org/sgp/crs/row/R41481.pdf>.

²²¹ Park Geun-hye, "A New Kind of Korea," *Foreign Affairs*, September-October 2011, <http://www.foreignaffairs.com/articles/68136/park-geun-hye/a-new-kind-of-korea>.

²²² Robert E. Kelly, "The Complex China-South Korea Relationship," *Diplomat*, June 18, 2014, <http://thediplomat.com/2014/06/the-complex-china-south-korea-relationship/>.

²²³ Scott Snyder, "Breaking the Impasse in U.S.-South Korea Nuclear Cooperation Negotiations," *Forbes*, October 23, 2014, <http://www.forbes.com/sites/scottasnyder/2014/09/23/breaking-the-impasse-in-us-rok-nuclear-cooperation-negotiations/>.

²²⁴ Victor Cha, "U.S. and South Korea Agree to an Extension of the 123 Civil Nuclear Agreement," Center for Strategic and International Studies, April 24, 2013, <http://csis.org/publication/us-and-south-korea-agree-extension-123-civil-nuclear-agreement>.

of the debate centers on the ROK's desire to manage nuclear material from the start to finish of the production cycle, and lessen dependence on the United States. The United States has never allowed for allies to control the full cycle of nuclear materials, because of proliferation concerns.²²⁵ The ROK is showing little signs of lessening nuclear technology advances and has recently agreed to build four nuclear power reactors for the United Arab Emirates at a cost of \$20B.²²⁶ Any future agreement needs to benefit the ROK's nuclear program while limiting the United States susceptibility to criticism from nuclear nonproliferation organizations.

During President Obama's trip to Seoul in 2014, ROK's President Park mutually agreed that there was a need to improve upon trilateral information sharing between the ROK, Japan and the United States.²²⁷ The same views were expressed in a joint statement after a meeting of U.S.-ROK defense ministers and head diplomats:

The Ministers recognized that trilateral security cooperation between the United States, the ROK, and Japan strengthens deterrence against the North Korean threat and expressed their intention to expand trilateral security cooperation and coordination....²²⁸

As the ROK continues to improve in its defensive bilateral cooperation with the United States and purchases platforms such as the Global Hawk²²⁹ and F-35 Joint Strike Fighter²³⁰, they could gain a valuable force multiplier by choosing to enhance cooperation with Japan. The Japan-ROK portion of a trilateral BMD agreement could

²²⁵ Ibid.

²²⁶ "Nuclear Power in the United Arab Emirates," World Nuclear Association, last modified September 15, 2014, <http://www.world-nuclear.org/info/Country-Profiles/Countries-T-Z/United-Arab-Emirates/>.

²²⁷ "Joint Fact Sheet: The United States-Republic of Korea Alliance: A Global Partnership," The White House Office of the Press Secretary, April 25, 2014, <http://www.whitehouse.gov/the-press-office/2014/04/25/joint-fact-sheet-united-states-republic-korea-alliance-global-partnershi>.

²²⁸ "Joint Statement of the 2014 United States – Republic of Korea Foreign and Defense Ministers' Meeting," U.S. Department of State Office of the Spokesperson, October 24, 2014, <http://www.state.gov/r/pa/prs/ps/2014/10/233340.htm>.

²²⁹ Joyce Lee, "S. Korea announces Plan to Buy Northrop Grumman Global Hawks," *Reuters*, March 24, 2014, <http://uk.reuters.com/article/2014/03/24/northrop-korea-globalhawk-idUKL4N0MK0BF20140324>.

²³⁰ "Lockheed Martin to Finalize \$7.1B F-35 Deal with South Korea," *Zacks*, September 25, 2014, <http://www.zacks.com/stock/news/148401/lockheed-martin-to-finalize-71b-f35-deal-with-south-korea>.

reduce the cost of platform testing and acquisition while information sharing could result in more efficient use of BMD platforms. The additional benefits of a trilateral agreement will be discussed in the following chapter.

Since 2003, in another move to increase regional involvement, the ROK has been dedicated to engaging in more free trade agreements. The ROK has concluded agreements with the United States, Chile, Singapore, India, and Peru.²³¹ The ROK has also signed free trade agreements with economic organizations such as the ASEAN, EU and EFTA.²³² Meanwhile, an unlikely association is under negotiation that would unite Japan, China and the ROK in a free trade agreement.²³³ This FTA has the attention of the United States because it would create an agreement binding twenty percent of the world's economy.²³⁴ It seems that in this case, the three Asian states can put aside resentments to create a union that would mutually benefit all parties. The ROK is edging toward joining TPP negotiations, but must first formally request to join the partnership and be accepted by all current member states.²³⁵ The addition of the ROK to the TPP could further delay the already slow process currently being stymied by Japan and U.S. concerns.

In relation to the DPRK, the ROK's President Park Geun-hye has sought to better communications by disassociating economic and humanitarian relief from diplomatic acts and military deterrence. President Park has made it clear that a nuclear North Korea will not be tolerated, which has the full support of the U.S.-ROK alliance, but that aggressive acts by the DPRK will not deter relief operations or dialogue.²³⁶ President Park has

²³¹ "FTA Status of ROK," Ministry of Foreign Affairs Republic of Korea, accessed October 18, 2014, http://www.mofa.go.kr/ENG/policy/fta/status/overview/index.jsp?menu=m_20_80_10.

²³² Ibid.

²³³ Shannon Tiezzi, "China-Japan-South Korea Hold FTA Talks Despite Political Tensions," *Diplomat*, March 5, 2014, <http://thediplomat.com/2014/03/china-japan-south-korea-hold-fta-talks-despite-political-tension/>.

²³⁴ Shannon Tiezzi, "China-Japan-South Korea Hold FTA Talks Despite Political Tensions," *Diplomat*, March 5, 2014, <http://thediplomat.com/2014/03/china-japan-south-korea-hold-fta-talks-despite-political-tension/>.

²³⁵ "Korea-US Trade Summit: Is Complete Implementation KORUS FTA Prerequisite for Korea to Join the TPP?" *Business Korea*, May 1, 2014, <http://www.businesskorea.co.kr/article/4328/korea-us-trade-summit-complete-implementation-korus-fta-prerequisite-korea-join-tpp>.

²³⁶ Scott Snyder, "North Korea's Test of Trustpolitik," *Forbes*, January 31, 2014, <http://www.forbes.com/sites/scottasnyder/2014/01/31/north-koreas-test-of-trustpolitik/>.

adopted a “trustpolitik” stance that is flexible to the situation but not identical to the foreign policy of the United States.²³⁷ This stance has not yet become a hindrance to the United States politically or militarily.

A hindrance toward trilateral negotiation is the strained ROK-Japan relationship. Previous portions of this chapter have detailed the topics of comfort women, territorial disputes, and revisionist teachings. In a Liberation Day speech, President Park Geun-hye remarked, “we have been demanding (the Japanese side) change its stance and take steps acceptable for former comfort women while they are alive.”²³⁸ The territorial dispute seems to be a long way away from resolution and steps need to be taken in other forums prior to reaching any kind of agreement. While revisionism has created a rift in the ROK-Japan association, Park remains optimistic saying, “both South Korea and Japan have to look over the next 50 years and work to develop a future-oriented, friendly and cooperative relationship.”²³⁹ There are relatively simple steps that can be taken to improve relations between the two nations, but it is unknown whether or not nationalistic pride will continue to diminish the possibility of regional cooperation.

F. SUMMARY

The political, legislative, and diplomatic spheres in the Asia Pacific are dynamic. The President of the United States has made the Asia Pacific a priority. The military strategy produced under DSG 2012 requires action by multiple branches of government. As the United States increases its area of influence it must work with regional allies, such as Japan and the ROK. The United States must recognize the individual domestic and international concerns of these independent states. Japan and the ROK, while regional neighbors, have a long history that is susceptible to inflammation and is currently tenuous at best. The defense and diplomatic goals of the United States will require coordination.

²³⁷ Park Geun-hye, “A New Kind of Korea,” *Foreign Affairs*, September-October 2011, <http://www.foreignaffairs.com/articles/68136/park-geun-hye/a-new-kind-of-korea>.

²³⁸ Toru Higashioka, “South Korea’s Park Criticizes Japan Over ‘Comfort Women’ Issue at Liberation Day Speech,” *Asahi Shimbun*, August 15, 2014, http://ajw.asahi.com/article/asia/korean_peninsula/AJ201408150057.

²³⁹ Ibid.

To successfully achieve a PPAA the United States will have to serve as a third-party broker capable of negotiating an agreement appealing to all parties.

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IV. RECOMMENDATIONS FOR THE PPAA

After underlining the current fiscal constraints encountered by the U.S. Department of Defense (DOD), reviewing the national strategic aims of the United States, and discussing the political atmospheres in Japan and the Republic of Korea (ROK), evidence supports planning the Pacific Phased Adaptive Approach (PPAA) with separate defense and diplomatic objectives. The PPAA can be executed under current information sharing agreements and bilateral treaties. Under the PPAA, the U.S. DOD will continue current efforts but increase platform deployments in the Asia Pacific region; similar to the European Phased Adaptive Approach (EPAA). The aim of diplomatic efforts will be to create a multilateral defense-based agreement led by the United States that includes Japan and the ROK. A multilateral agreement would allow the states to share existing defense platforms, intelligence, and in the development of future technologies thus lessening the financial cost to each nation. The overall goal of the PPAA is to achieve a multilateral ballistic missile defense (BMD) system in the Pacific to counter a possible ballistic missile strike by the Democratic People's Republic of Korea (DPRK).

A. THE PACIFIC PHASED ADAPTIVE APPROACH

The initial phases of the PPAA will deploy current systems and technologies already in use. Later phases will require the installation of forward based sensors and interceptors with the operation of technologies under development. The most difficult aspect of the PPAA calls for an information sharing agreement to unite missile defense capabilities. This agreement is desired, but it is not required. If an agreement could be reached then Japan, Korea, and the United States could share military resources and critical, sensitive data. The data would be shared through C2BMC nodes. These nodes could be installed in respective allied command and control (C2) centers, but would first require cooperation between tense neighbors. The C2BMC nodes can be installed at any phase of the PPAA because computer terminals and associated software are miniscule in comparison to naval ships or THAAD batteries. The execution of the PPAA can proceed

without improving relations between Japan and the ROK, but without an agreement the United States would solely pay for the PPAA. An agreement would ultimately reduce the financial stress on all involved states. Finally, the PPAA assumes consent of the U.S. Congress to use expenditures aimed at improving the regional defense of allies and forward deployed U.S. military forces, deterring rogue states, and defending the U.S. homeland.

1. Phase 1

The first step will be to increase the number of U.S. BMD ships in the Asia Pacific. The United States has five BMD ships, stationed in Japan, capable of tracking and intercepting missiles with a plan to add three more by 2017.²⁴⁰²⁴¹ While not part of the PPAA, it is worth note that the Japanese Maritime Self Defense Force (JMSDF) has six ships with tracking and intercept capability with a plan to deploy two more by 2020.²⁴² The ROK Navy (ROKN) has three ships capable of detecting but not intercepting ballistic missiles, with a plan to purchase three more.²⁴³

The next step is to bring the southern Japan AN/TPY-2 radar online. The United States currently operates an AN/TPY-2 radar in Shariki, Japan, with the second radar to come online by the end of 2014. The radar is being deployed to Kyogamisaki, Japan, in an effort to provide comprehensive radar coverage of the Sea of Japan from the south.²⁴⁴ These sensors can share tracking data with interceptors to defend Japan and communicate with the U.S. BMDS to provide early warning of a threat to the U.S. homeland. When

²⁴⁰ Cheryl Pellerin, "Hagel: U.S. to Send 2 More Aegis Ships to Japan," *Armed Forces Press Service*, April 6, 2014, <http://www.defense.gov/news/newsarticle.aspx?id=121992>.

²⁴¹ "U.S. Navy's Overseas Force Structure Changes Underscore Commitment to the Asia-Pacific," U.S. Pacific Fleet Public Affairs, October 16, 2014, <http://www.cpf.navy.mil/news.aspx/010324>.

²⁴² "Japan to Build Two Aegis Destroyers, Expanding Fleet to Eight," *Japan Times*, August 7, 2014, <http://www.japantimes.co.jp/news/2014/08/07/national/politics-diplomacy/japan-build-two-aegis-destroyers-expanding-fleet-eight/#.VE57Jb6RPGg>.

²⁴³ "Korea's KDX-III AEGIS Destroyers," *Defense Industry Daily*, last modified May 27, 2014, <http://www.defenseindustrydaily.com/drs-wins-multiplexing-contract-for-korean-aegis-destroyers-0431/>.

²⁴⁴ Karren Parrish, "U.S., Japan Agree to Expand Security, Defense Cooperation," *Armed Forces Press Service*, October 3, 2013, <http://www.defense.gov/news/newsarticle.aspx?id=120902>.

both a city's name and that city's state or country's name are mentioned together, the state or country's name is treated as a parenthetical element.

The third step is to make the THAAD battery in Guam a permanent station. A THAAD battery has been deployed to Guam since 2012. The goal of permanent stationing will be to increase BMD readiness by maintaining expert personnel on station for longer rotations. Instead of year-long rotations, service members would conduct multi-year accompanied tours. Army personnel currently operating on deployed status would be phased out over the upcoming 24 months as permanent housing and facilities are established at existing U.S. bases. This move would solidify BMD planning for Guam while sending a strong political message of commitment to the Asia Pacific at a relatively low cost.

Last, the GBI expansion project currently underway will be folded into Phase 1. The additional procurement of GBIs for Fort Greely, Alaska has already been announced by the Obama administration and subsequently funded by dollars intended for the cancelled SM-3 Block IIB program.²⁴⁵ 14 additional GBIs will raise the total to 44 GBIs by 2017.²⁴⁶ The GBIs will serve as a deterrent and defense against a DPRK missile attack and can thus be justified as essential to the PPAA.

The first phase of the PPAA utilizes programs and actions already in motion but binds them together to form a coherent plan. The first phase requires announcements by officials but little in the form of new funding. This phase is filled with easily attainable goals that will build momentum for the more difficult phases to follow.

2. Phase 2

The first step in Phase 2 is to deploy THAAD to Busan on a permanent basis. Previous sections discussed the ongoing debate within the ROK concerning BMD systems and hinted at the possibility of U.S. BMD platforms in the ROK. Under phase 2, a THAAD battery will deploy to Busan, ROK to be operated by U.S. forces. Busan is in

²⁴⁵ Senate Armed Services Committee, National Defense Authorization Act for Fiscal Year 2014, S. Rep. 113–44 (2014).

²⁴⁶ Ibid.

the southeastern most portion of the ROK. If a foreign military sale can be agreed upon, the THAAD battery will be turned over to the ROK Army. A THAAD battery in Busan, ROK will provide missile defense of key U.S. and ROK military installations. This protection will be increasingly important after the U.S. base realignment is complete. Once U.S. forces are withdrawn from near the DMZ and placed into the two base concentration areas, U.S. installations could be an easier target for a DPRK missile attack. THAAD has been proven to be effective at intercepting the medium and intermediate range missiles capable of reaching the southern tip of the ROK from the DPRK.

Given the attention and publicity of the EPAA, it can be assumed that the four BMD ships deployed to Rota, Spain are currently equipped to defend European allies at a higher level than other regions; thus carrying a significant number of SM-3s. While BMD ships continue to deploy to the Persian Gulf in defense of allies against an Iranian threat, Middle East states have begun to acquire their own BMD assets.²⁴⁷ UAE and Qatar have purchased THAAD from the United States.²⁴⁸ As partners take responsibility for their own defense, the burden on SM-3s in 5th Fleet is lessened.²⁴⁹ Simultaneously, Aegis Ashore will come online in Romania and Poland, lessening the need for SM-3s on ships, but raising the overall number of SM-3s in the region. Without a published plan for permanent land based interceptors, Pacific Command, specifically 7th fleet, needs to become the top priority for the distribution of SM-3s.

The second step in Phase 2 is the redistribution of SM-3s on a 3-1-1 basis. The 3-1-1 distribution assumes that current operations are occurring with an even split amongst the 5th, 6th and 7th fleet respectively. The actual distribution of SM-3s is classified. Under a 3-1-1 plan, 7th fleet BMD ships would receive 3 missiles for each missile sent to 5th and 6th fleet BMD ships. As previously mentioned, the fleet is expected to receive 267 SM-3s

²⁴⁷ Christopher P. Cavas, "Fleet Scrambles to Meet BMD ship demand," *Navy Times*, January 4, 2010, <http://www.navytimes.com/article/20100104/NEWS/1040322/Fleet-scrambles-meet-BMD-ship-demand>.

²⁴⁸ Andrea Shalal-Esa, "U.S. Clears Sale of Lockheed Missile Defense System to UAE, Qatar," *Reuters*, November 6, 2012, <http://www.reuters.com/article/2012/11/06/us-lockheed-missiles-mideast-idUSBRE8A507J20121106>.

²⁴⁹ Sam LaGrone, "Two Final U.S. Navy Patrol Ships Arrive in Middle East," *USNI News*, August 15, 2014, <http://news.usni.org/2014/08/14/two-final-u-s-navy-patrol-craft-arrive-middle-east>.

for inventory. If 48 SM-3s are distributed to Aegis Ashore in EPAA and 4 are sent to the test ship, then 215 SM-3s will be divided amongst BMD ships worldwide. With a 3-1-1 plan, 129 SM-3s will be sent to 7th fleet and 43 missiles will be sent to 5th and 6th fleet respectively. If 7th Fleet maintains the projected 7 BMD ships in Japan, then each ship could be equipped with 18 missiles on an even distribution or over 20 per ship dependent on ship maintenance or reserve planning. The increase in available ships and missiles provides greater flexibility in planning while projecting power throughout the Pacific.

Phase 2 marks the first new movement of forces. There will be significant regional reaction to deploying THAAD to the ROK, but the PRC can be reassured of its limited capability and lack of capability against PRC missile threats. If the ROK is hesitant about domestic reaction, then the United States can deploy THAAD purely for the defense of U.S. interests and personnel. The 3-1-1 distribution of SM-3s could be made public in the PPAA, but the actual distribution of missiles aboard ships will remain classified. The announcement of moving missiles to the Asia Pacific will send a strong message of commitment to U.S. regional interests.

3. Phase 3

The first step of phase three is to improve sensor coverage across the Pacific by stationing the Sea-Base X-band (SBX) radar at the island of Midway. The SBX is currently in a limited availability status due to financial restrictions. SBX remains available for critical missions and BMDS testing. The role of a floating radar platform could be fulfilled by BMD ships stationed in San Diego or land-based radars. SBX plays a key role in the Ground Based Midcourse Defense (GMD). If SBX's role is becoming more and more limited it should be eliminated from GBI testing and deployed for active duty until it is re-tasked, upgraded, or decommissioned. Due to geographic location, Midway would allow for tracking and detection of threats aimed at the Hawaiian Islands or the west coast of the United States.

The next step will close sensor gaps in the Pacific by activating the Long Range Discrimination Radar (LRDR). As previously discussed, the LRDR is in the procurement and developmental stage. Although a permanent location has not been finalized, it will

likely be stationed in the Aleutian Islands to provide maximum coverage of the northern and central Pacific. By the end of the decade, this land-based radar will provide continuous sensor coverage across the central Pacific.

The final step of Phase 3 is to deploy Aegis Ashore to the west coast of Honshu, preferably to the Noto Peninsula.²⁵⁰ Honshu is mainland Japan, extending from Hiroshima in the south to Akita in the north. Honshu is the most populous portion of Japan and contains Tokyo, Yokohama, Kyoto, Nagoya, Misawa, Kawasaki, and Osaka. This step mimics portions of phase 2 and 3 of the EPAA. Aegis Ashore brings sensor and intercept capability on a permanent, continuous basis. This move will require considerable cooperation from Japan, but is well within the range of possibility. As of August 9, 2014, the Defense Ministry of Japan has already hinted at deploying a version of Aegis Ashore with land based SM-3s.²⁵¹ Aegis Ashore could provide BMD for the majority of the Honshu plain and early warning of threats heading toward Hawaii or the continental United States.

Aegis Ashore in Japan would have multiple effects. First, fewer ships would be dedicated to the BMD of the Honshu plain. This means that navy ships could return to being multi-mission platforms vice point defense assets. Next, given the increased intercept capability of SM-3 Block 2A, BMD ships will require fewer SM-3s and have more available space for SM-2s. The newer SM-3 Block IIA missiles would be distributed to Aegis Ashore while the older SM-3 Block IA/IB missiles would be deployed to the BMD ships for flexible, alert use.

Phase 3 will improve sensor coverage across the Pacific for regional and homeland defense. The deployment of new systems will increase the timeline for engagement due to maximum tracking and detection of missile threats. By lessening the need for SM-3 missiles at sea in the Pacific, ships will have increased flexibility and higher levels of readiness, which give planners the ability to conduct other missions such as maritime security.

²⁵⁰ The Noto Peninsula is directly west of Tokyo and lies on the west coast of Honshu.

²⁵¹ “Defense Ministry Mulls Introducing Ground-based SM-3 Interceptor Missiles,” *Mainichi Japan*, August 9, 2014, <http://mainichi.jp/english/english/newsselect/news/20140809p2a00m0na013000c.html>.

4. Phase 4

The first step of Phase 4 is to reactivate the SM-3 Block IIB program. As already stated, the SM-3 Block IIB program was canceled in March 2013. SM-3 Block IIB was originally scheduled for phase 4 of the EPAA, but funding was redirected toward GBI improvements. The SM-3 Block IIB, fired from Aegis Ashore, will provide additional capability against ICBM threats.²⁵² In conjunction with the activation of the SM-3 IIB program, the Aegis Ashore test facility in Hawaii will be made ready for operational use.

The Aegis Ashore testing facility in Hawaii will enter a limited testing availability status. The operational platform will be made available to MDA for testing on limited basis; the exact opposite of the current plan for SBX. Equipping Aegis Ashore in Hawaii with SM-3 Block IIB would add another layer of protection against an ICBM threat bound for the continental United States. This measure allows for multiple intercept opportunities vice the current system that consists solely of Ground Based Interceptors (GBI) launched from Alaska or California.

Last, the existing Space Tracking and Surveillance System (STSS) will be augmented for persistent overhead coverage of threat regions. The current system consists of two satellites that will operate past their intended service life.²⁵³ Satellites allow for early warning of launches and provide cues to BMDS assets. Effective satellite coverage will reduce the need for airborne detection systems such as the aforementioned Airborne Infrared (ABIR) drone system. When satellites are able to track missiles during the initial phases of flight, BMD ships are able to standoff from launch areas and outside the range of enemy threats.

In Phase 4 the emphasis is building defense in depth. Previous phases increased regional defense and sensor coverage across the central Pacific. The last phase improves

²⁵² Rachel Oswald, "U.S. Official Defends Spending on NATO Missile Shield, Under GOP Attack," *Global Security Newswire*, June 25, 2013, <http://www.nti.org/gsn/article/us-official-defends-spending-nato-missile-shield-under-gop-attack/>.

²⁵³ "Precision Tracking Space System," Missile Defense Agency, December 2013, <http://www.mda.mil/global/documents/pdf/ptss.pdf>.

intercept capability and reinforces a commitment to deploying assets based on known threats.

B. DIPLOMATIC CONSIDERATIONS FOR THE PPAA

The diplomatic arm of the PPAA will attempt to build on existing mutual defense treaties to form a trilateral agreement between the United States, Japan, and the Republic of Korea. The purpose of a trilateral agreement is to share resources leading to a cohesive regional BMD system. The resources to be shared are sensors, interceptors, and communication platforms. Japan could use SM-3s to defend Korean assets, Korean sensors could provide early warning to Japanese defenses, and both nations could share satellite bandwidth for communications and intelligence gathering. A regional BMD architecture in the Asia Pacific also serves as an early warning for defense of the U.S. homeland. These diplomatic efforts are not governed by a timeline in congruence with the military execution of the PPAA. The proposed measures in this section focus on easily identifiable divisive issues and are not intended to be limiting or all encompassing. Foreign policy and regional politics are dynamic. Negotiations concerning the PPAA would be difficult and require long-term commitment.

Before a comprehensive alliance can be formed, several areas must be addressed. The trilateral agreement could require concessions by all parties. Japan could be required to take conciliatory steps to improve relations with the ROK. The ROK could be publicly and directly contributing to the defense of Japan. The United States could serve as broker for negotiations and may bare the initial financial burden. A trilateral defense agreement could benefit all parties, militarily and financially, in the long term.

1. The United States

Previous attempts at forming a trilateral defense agreement between the United States, ROK and Japan have failed. As recently as June 2014, top defense officials from the concerned nations once again stated their mutual desire for close cooperation in

opposition to a belligerent DPRK.²⁵⁴ Given the existing U.S.-ROK and U.S.-Japan defense treaties, the focus of the United States should be on developing ROK-Japan cooperation. The primary bargaining tool for the United States is the combination of available technology and funding.

The military execution of PPAA already deploys U.S. assets within Japan and the ROK. These deployments will rely upon bilateral agreements. Each deployed U.S. asset will bolster the defense of the host nation. Because the host nation benefits, they will incur part of the financial burden. To enhance the incentive to cooperate trilaterally, the United States can shoulder the initial cost of asset deployment, agree to train host nation services in THAAD and Aegis Ashore employment, and then sell the platforms at reduced cost to Japan and the ROK. The alternative is to require host nations to contribute financially toward the deployment and maintenance of THAAD in the ROK and Aegis Ashore in Japan. If social and historic issues cannot be overcome then hopefully a financial incentive will appeal to Japan and the ROK.

2. Republic of Korea

President Park could extend the policy of “trustpolitik” to Japan.²⁵⁵ If Japan is willing to apologize for the use of comfort women then the ROK should accept the apology. As President Park has been able to separate diplomacy from humanitarian aid with the DPRK, Park could then be willing to work with Japan and move past historic disputes. With a formal apology on the record, Japan and the ROK could move toward a new chapter of cooperation.

If Japan apologizes for imperial aggression, the ROK could seek the opportunity to resolve the Liancourt Rocks dispute. The ROK continues to execute administrative control over the islands, Japan has made territorial claims, and the United States has remained neutral during the debate. The ROK has refused to take the debate to the International Court of Justice as suggested by Japan because previous territorial dispute

²⁵⁴ “Joint Statement from U.S.-ROK-Japan Defense Ministers Meeting,” U.S. Department of Defense, June 1, 2014, <http://www.defense.gov/releases/release.aspx?releaseid=16738>.

²⁵⁵ Park Geun-hye, “A New Kind of Korea,” *Foreign Affairs*, September-October 2011, <http://www.foreignaffairs.com/articles/68136/park-geun-hye/a-new-kind-of-korea>.

rulings seem to favor Japan's current claim.²⁵⁶ Under an optimal circumstance, the dispute would be settled bilaterally with ROK maintaining control of the islands and Japan gaining economic rights to an area southeast of the islands. The ROK could then reduce the economic exclusion zone to the east of the islands, allowing Japan access to the natural resources surrounding the islands. This agreement could benefit both nations and reduce tensions.

3. Japan

The Abe administration could take immediate and lasting steps to overcome the negative public opinion of Japan in the ROK. The current administration in Japan could put an end to the controversy concerning the use of comfort women during the World War II era. A formal and public apology by Prime Minister Abe to President Park assuming responsibility for past atrocities would improve relations. The apology could be accompanied by financial reparation to those still alive that were affected by the Japanese military.

In an effort to improve U.S.-Japan and Japan-ROK relations, the Japanese government could refrain from making ceremonial visits to the Yasukuni shrine. If the Diet (Japan's parliament) adopted a measure citing Chidorigafuchi National Cemetery as the national landmark remembering those that died in the service of Japan then it may send a strong message from the people of Japan to the ROK. A legally binding statement might curb potentially detrimental action by future administrations.

C. SUMMARY

The PPAA will utilize diplomatic and military tools to create a unified ballistic missile defense in the Asia Pacific. The military portion of the PPAA can begin immediately without the creation of additional bilateral or trilateral agreements. In the initial phases, the United States will continue the scheduled deployment and activation of sensors, interceptors, and communications assets in the Pacific. Later phases will require

²⁵⁶ Lee Eun-joo, "Seoul Rejects Tokyo's ICJ proposal," *Korea JoongAng Daily*, August 18, 2012, <http://koreajoongangdaily.joins.com/news/article/article.aspx?aid=2958075&cloc=joongangdaily%7Chome%7Ctop>.

additional assets and utilize new technologies to enhance the defense in depth of regional allies and the U.S. homeland.

The diplomatic aspects of the PPAA are not strictly linked to the military goals. The ultimate goal of diplomatic efforts is to form a trilateral agreement. The trilateral defensive alliance will allow information to be shared freely between the United States, Japan, and the ROK. Information sharing leads to cooperative planning and the efficient, effective employment of limited resources. While not required, it would ultimately reduce the strain on U.S. forces that can be employed elsewhere in the dynamic defense environment.

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V. CONCLUSION

The Pacific Phased Adaptive Approach (PPAA) will establish missile defense systems in the Asia Pacific to defend regional allies and the U.S. homeland. Based upon the inconsistency of relations between the unpredictable, heavily armed regime in North Korea and regional neighbors, many of whom are host nations to U.S. military personnel, a comprehensive defense architecture should be installed. While the political atmosphere remains tenuous between the ROK and Japan, there is agreement concerning the threat of North Korean missile and nuclear technology. The United States possess the resources to execute the PPAA with existing bilateral U.S.-Japan and U.S.-ROK agreements, however, a trilateral defense agreement would greatly decrease the overall cost to the United States. If Japan and the ROK are unable to resolve historic grievances then the United States will continue executing defense policy while managing multiple defense agreements.

The need for the PPAA arose from the successful launch of a North Korean satellite in December 2012. Prior to December 2012, the DPRK had conducted multiple failed launches dating back to 1998. Given that the launch was proof of long-range ballistic missile capability, the next most concerning topic is the DPRK's desire to become a nuclear power. After confirming multiple nuclear detonations, U.S. intelligence officials now believe the DPRK is in possession of an unknown number of nuclear weapons. Until the DPRK confirms their ability to miniaturize nuclear material in the shape of a warhead that can be placed on ballistic missiles, the global community and regional neighbors are should operate as though it has already been achieved. The United States and allies should not wait until an attack is in progress to plan for defense.

In a proactive response to the possibility of an Iranian threat, the United States is currently executing the European Phased Adaptive Approach (EPAA) under the consent of NATO. In 2009, U.S. President Obama announced a four-phase (now three phases) introduction of U.S. BMD platforms into Europe to create a missile shield capable of destroying inbound missiles launched from Iran. As of November 2014, the United States

has deployed BMD ships to Rota, Spain, installed a C2BMC node in Germany, and has begun construction of an Aegis Ashore facility in Romania.

The PPAA will follow a similar route already in use in Europe. Over four phases, the United States will introduce sensors, interceptors, and communications assets into the Asia Pacific to defend against a North Korean ballistic missile attack. Unlike the NATO alliance, Japan and the ROK do not maintain a comprehensive defensive agreement. The United States can introduce assets into Japan and the ROK on an independent basis under the existing bilateral agreements. If Japan and the ROK could agree upon a defensive alliance then the United States could lead in the sharing of resources. The three nations could share intelligence, split defensive ship patrols, share the cost of missile production, share the cost of BMD system maintenance and split the cost of testing future technologies. A multilateral defense agreement would be beneficial for all parties but is not necessary for the United States to establish a BMD architecture in the Asia Pacific to deter and defend against a North Korean attack.

The downfall of the PPAA could be its lack of strategic flexibility. The counter to an announcement of a long-term BMD strategy in the Asia Pacific would be to continue executing U.S. military policy in congruence with U.S. strategic interests. Opponents of the EPAA believe that by announcing U.S. defense initiatives it leaves defense officials bound to policies and unable to adapt to changing circumstances. When the DOD announced it was eliminating the last phase of the EPAA it drew considerable negative attention. The Obama administration had to then explain the reason for redistributing funds to the GBI program. If the EPAA had not been announced, and simply implemented, then a change in plans would not warrant a public explanation by the U.S. Secretary of Defense. In this sense, modification to an announced plan draws unnecessary criticism and diminishes overall strength.

The counter to opponents of proclaiming strategic interests is the inherent benefit of stated goals. By clearly proposing a plan such as the EPAA, funding and planning become more feasible. As part of a larger initiative, budget requests can be combined under one request, vice multiple line items that could be subject to individual scrutiny and debate. An announcement of such a plan by the President of the United States draws

the attention of the international community. The consequences are twofold. First, the proclamation draws the support of partner nations. This support carries weight in domestic politics and improves the possibility of gaining financial approval in Congress. Elected officials in Congress are usually unwilling to draw negative attention through the denial of funds beneficial to allied nations. Second, the support expressed by the partner nation is seen by surrounding nations and other allied partners, which increases the likelihood of other nations extending support for future agreements. The overall benefit of clearly outlining the movement of U.S. forces abroad, in terms of financial support for forces and the international political goodwill and support, far outweighs the possible negative backlash experienced in making adjustments to strategic vision. Simply stated, it is better to clearly communicate intentions and endure criticism than to risk implementation failure due to lack of support.

The next step in pursuit of the PPAA is gaining support in the executive branch of the United States government. If the DOD, DOS, and President can agree upon the PPAA then it will fall to legislative approval in the form of funding. The introduction of BMD assets into Japan and the ROK will require diplomatic action by the U.S. and host nations. The Secretary of Defense and Secretary of State will be needed to discuss the addition of U.S. assets into Japan and the ROK prior to a public announcement by the respective heads of state. The possibility of a trilateral defense agreement would require significant diplomatic involvement and maneuvering. The specifics of diplomacy are too dynamic to outline until the PPAA is announced and discussed with partner nations.

In summary, the DPRK poses a threat to the United States and regional allies in the Asia Pacific. The United States should pursue the PPAA outlined in this thesis. The PPAA will flow similar to the EPAA. By increasing the number of BMD sensors, interceptors, and communications platforms in the Asia Pacific, in coordination with Japan and the ROK, the United States will be prepared to engage a BMD threat from North Korea. The best possible outcome also involves a trilateral defense agreement between the United States, the ROK, and Japan. The most feasible outcome is for the United States to deploy BMD assets in four phases under existing bilateral defense agreements. If the United States enacts the PPAA in conjunction with international

support, then the United States will be defending regional allies, strengthening relations in the Asia Pacific, deterring North Korean aggression, and defending the U.S. homeland.

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